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Original Lectures.

LECTURES ON THE PHYSIOLOGY OF THE CRANIAL NERVES.

DELIVERED IN THE COLLEGE OF PHYSICIANS AND SURGEONS.

BY

JOHN C. DALTON, JR., M.D.,

PROFESSOR OF PHYSIOLOGY AND MICROSCOPIC ANATOMY.

Lecture I.

To-day, gentlemen, we shall begin the study of the cranial nerves: and I will mention in the first place that in studying these nerves, we shall leave out of consideration three which are usually included in the enumeration. We shall say nothing at present of the three nerves of special sense, the olfactory, the optic, and the auditory, for reasons into which I shall enter more fully hereafter. We shall study the cranial nerves as conductors, in the first place of sensation from without inwards, and secondly of the stimulus of motion from within outwards. The cranial nerves, then, viewed in this light, are only nine, instead of twelve. Enumerating from before backwards, we meet first with what is called the third pair, the motor oculi communis, or, as it is more frequently called, the oculo-motorius; the fourth pair, or *patheticus;* the fifth pair, or *trigeminus;* the sixth pair, or *abducens;* the seventh, or *facial;* the ninth, or *glosso-pharyngeal;* the tenth, or *pneumo-gastric;* the eleventh, or *spinal accessory;* and the twelfth, or *hypoglossal.* I have thus enumerated nine pairs, and left out the three nerves of special sense.

Now in commencing the study of these nerves we shall find that, like the spinal nerves, they are composed of filaments which are either motor or sensitive in their nature, which either convey sensation, as I have said, from without inwards to the nervous centres, or convey the stimulus to motion from within outwards towards the contractile muscles. We shall find that they consist sometimes exclusively of motor fibres, and sometimes wholly of sensitive filaments; while in other instances they may be made up of these two different kinds of filaments mingled together in such a way and in such relative proportions that the nerve as a whole possesses mixed properties.

To-day I shall call your attention to those cranial nerves which are distributed to the muscles within the orbit: the third pair or oculo-motorius, the fourth pair or patheticus, and the sixth pair or abducens.

Let us see, in the first place, what are the anatomy and distribution of these nerves; secondly, what is their relation to each other; and thirdly, what are the peculiar functions which they perform. First, the oculo-motorius. This nerve originates from the inner side of the crus cerebri, at the point which I now indicate with the end of the instrument, about half way between its emergence from the anterior edge of the pons varolii; and the point where it passes underneath the lateral lobe of the cerebrum. It passes from without inwards and from behind forwards; then, leaving the cavity of the cranium, enters the cavity of the orbit by the foramen lacerum anterius or the sphenoidal fissure. Having arrived in the cavity of the orbit, it breaks up into two or three different branches, these into final ramifications, and thus the nerve as a whole is distributed to the following muscles;—levator palpebræ superioris, superior rectus, internal and inferior rectus, and inferior oblique. The nerve, as you will see, is justly entitled to the name given it.

Such, then, are the origin and distribution of the third pair of cranial nerves; now let us pass on to the examination of the fourth pair, or patheticus. It originates in a much deeper situation than the third pair, and in order to view it properly, we are obliged to lift the posterior lobes of the cerebrum from the superior suface of the cerebellum, when we find the nerve lying in the fissure between the cerebellum and the tubercula quadrigemina. This nerve is exceedingly small, and very slender in comparison with the one we have just had under consideration, for the very good reason that it has a minor function to perform, that is to say it is distributed only to a single muscle, viz. sup. oblique.

The sixth pair, or abducens, originates still further back, arising from the anterior column of the medulla oblongata, at the point which I now indicate; it runs from behind forward, and, like the nerves just described, passes through the sphenoidal fissure into the orbit, and like the patheticus is distributed to but one muscle, viz. the external rectus. In this fresh brain you will see indicated the origin of these different nerves, or rather the origin of some, and the course of all, as they pass from the surface of the brain forward to the sphenoidal fissure. You will see that I have here the fresh brain of a sheep, laid upon its superior surface, so as to show its base. Emerging from the inner edges, as I mentioned, of the crura cerebri, you have here exposed the track of the third pair, the oculo-motorius; then you will see, a little further back, and curling round the crus cerebri from behind, the small and slender patheticus; again, on the anterior surface of the medulla oblongata, originating from just behind the pons varolii, two other nerves which run forward in a similar direction. These are the abducentes.

In this second preparation you have the origin of the fourth pair more distinctly marked. In the last specimen shown, you could only see the nerve curling around the crus cerebri, but here you see exposed, first the tubercula quadrigemina, and secondly, immediately behind them, a thin sheet of nervous matter which is the valve of Vieussens; and originating from this by two or three filaments, the fourth nerve. Now at its origin the fourth pair very frequently shows a transverse band of white fibres, or a commissural bundle, extending from one side to the other; an appearance which is not so visible in the sheep's brain as in that of the dog.

Here is the brain of a dog, which shows this in a remarkably distinct manner; you see the white bundles just at the point where they emerge from the valve of Vieussens.

In this third preparation you have a dissection of these nerves, showing their course in the interior of the cranium, the brain having been removed. It shows the third, fourth, and sixth pairs, as they pass through the foramen lacerum anterius and enter the cavity of the orbit. On the inside of the fourth pair you will see the oculo-motorius, which passes in very much the same direction through the cavity of the orbit, to supply the muscles already enumerated. In this preparation of the head of a sheep, the levator palpebræ superioris muscle is comparatively small, and you will see that the size of the nerve which supplies it is proportionally small, for the reason already explained. Finally, in this last preparation, you have a dissection of the sixth pair on one side, as it leaves its origin at the base of the brain and runs forward (the dura mater which naturally covers it being here removed) to enter the cavity of the orbit by the sphenoidal fissure. These dissections, then, will give in a very general way the origin, course, and distribution of these three nerves. Now, I have spoken of these three nerves together, and shall continue to speak of them together, for various reasons. They are naturally associated with each other so far as their origin is concerned. In the description I have already given of these nerves, they would seem to originate from different parts of the brain, but in reality they are connected with each other; they all originate from continuations of those longitudinal bundles of fibres coming up from the anterior part of the spinal cord, which constitute the motor tract. Take, for example, the third pair. They originate, as I have already stated, from the inner side of the crus cerebri, which, in its turn, is nothing more than a bundle of motor filaments. So that, in originating from the crura cerebri, the third pair in reality are continuations of these motor fibres. The fourth

pair, which takes its apparent origin from the valve of Vieussens, can be traced backwards in such a manner as to show that it originates in reality from the continuations of the motor columns of the cord, forming the *processus e cerebello ad testes*, or the "inter-cerebral commissure." Thirdly, the sixth pair originates directly from the anterior pyramids of the medulla oblongata, which form the upper extremities of the anterior columns of the spinal cord.

When examined in detail, therefore, we find that these three nerves have an origin which may be regarded as physiologically the same, although in ordinary parlance they might be considered as different. Their distribution is also the same; for I have only to remind you that these three nerves, originating in similar portions of the brain, pass out of the cranial cavity by one foramen, that is the sphenoidal fissure, and, having entered the cavity of the orbit, are all distributed to muscles having a common object, that is the movements of the eyeball, and the protection of its anterior surface from too great an influx of light. It is very evident that these nerves are associated in their distribution, so far as their physiological character is considered. We may consequently regard them very properly as one nerve, with its different branches supplying different muscles belonging to the same set. We are not, however, to consider each nerve by itself, as distinct, simply because it passes out of the cranial cavity by a distinct foramen; neither, on the other hand, should we regard two nerves as identical, merely because they pass out by the same foramen. The auditory and facial nerves both leave the cranial cavity together by the meatus auditorius internus; but they are entirely different in their distribution and in their functions.

You will recollect, if you please, gentlemen, the manner in which the anterior and posterior roots of the spinal nervous trunks are situated, and that in them reside two important qualities, viz. excitability and sensibility; excitability, by which the nerve, when irritated, causes a muscular contraction; and sensibility, or that property by which the nerve, when irritated, produces a painful sensation.

Now let us examine these three nerves in the same way as we have examined the spinal nerves. Take first the third pair or oculo-motorius nerves. If they be irritated, the consequence of that irritation is a contraction in the muscles of the eyeball. Then if we divide the nerve, there follows, as a consequence, paralysis of all the muscles to which it is distributed. The same thing may be said of the two other nerves which we have examined. Irritate the fourth pair, and you have a spasmodic contraction of the superior oblique muscle; divide it, and you have paralysis of the same muscle. Irritate the sixth pair, and you have a spasmodic contraction of the external rectus; divide or destroy it, and you have a paralysis of the same muscle. All these effects are produced without the intervention of any painful sensation. The result of these examinations has shown, therefore, that these three nerves are exclusively motor in their character.

Now let us see what is the effect upon the general condition of the eye-ball when these nerves are injured by experiment, or destroyed by disease.

Suppose, in the first place, that the oculo-motorius nerve is injured or destroyed, during any part of its course, by inflammation, by pressure from an intra-cranial or intra-orbital tumor, or by any similar morbid affection. The consequence would be paralysis of the muscles which it supplies with filaments. The first and most palpable effect of such a paralysis is a constant drooping of the upper eyelid, and an incapacity to open the eye widely. In opening and closing the eye the inferior lid is nearly passive. The upper lid is raised by the action of the levator palpebræ superioris, as you would draw up a curtain by pulling the strings. The consequence is, that paralysis of the oculo-motorius is followed by paralysis of the levator palpebræ superioris, which in its turn results in the partial closure of the eye. You will notice, gentlemen, that the eye is not *completely* closed after paralysis of the oculo-motorius, because the superior eyelid only falls downwards by its own weight, and there is still left a narrow opening between the two eyelids. When the eyelids are to be forcibly closed, we call into play an entirely different muscle, viz. the orbicularis oculi. Hence the closure of the eye which results from paralysis of the levator palpebræ superioris, is partial in its nature, and not complete. The consequence of this paralysis is a very peculiar deformity of the affected side of the face. Naturally the eyes on both sides are equally open. They are open to such an extent that we generally see a little more than half the cornea, and the whole or nearly the whole of the pupil. Now when the levator palpebræ superioris is paralysed, the upper eyelid drops down over the eye like a curtain, instead of being freely lifted, as it should be.

The next effect of paralysis of the oculo-motorius is an external strabismus. For the three recti muscles of the eyeball, which are animated by this nerve, being paralysed, and the external rectus, which is supplied by the abducens, not being antagonized, the eyeball is rotated upon its vertical axis, and turned outwards. Then we have an external strabismus, simultaneously with paralysis of the upper eyelid. The paralysis of the upper eyelid is called by a distinct name, *Ptosis*. When ptosis comes on without any evident cause, a symptom in itself apparently so insignificant as this may have a very important bearing; it may originate from some unimportant morbid process going on in the cavity of the orbit, some tumor or some inflammation involving the trunk of the oculo-motorius or one of its branches; but it may also originate from disease within the cranial cavity.

Secondly, with regard to injury or paralysis of the patheticus or fourth pair; we need say very little about this nerve, since it is distributed to but one muscle, and consequently only a very limited paralysis is the result of its injury.

The sixth pair, in this respect, is somewhat different. The external rectus muscle, to which this nerve is distributed, is of course paralysed when the nervous supply is cut off, and there is in consequence internal strabismus; precisely the opposite condition from that produced by paralysis of the oculo-motorius. We have therefore two different kinds of strabismus, external and internal, resulting from the paralysis of the third and sixth pair of nerves respectively. Now we know that different kinds of strabismus occur with different degrees of frequency. The most common form is internal strabismus, and the next most frequent, the external. Superior and inferior strabismus are exceedingly rare. I have, however, seen a case of superior strabismus, in which the eye of one side looked upwards. You will at once understand the reason of this difference by examining the arrangement of the nerves which supply the muscle in question. For it is evident that any disease affecting the oculo-motorius nerve would be much more likely to paralyse all its fibres together, and so produce external strabismus, than to be confined to those filaments supplying the superior or the inferior rectus, and so produce inferior or superior strabismus; while a paralysis of the external rectus muscle, and consequently internal strabismus, is more probable than either, since this muscle is supplied by a single nerve which may easily be affected independently of the rest.

There is one other point in regard to the phenomena shown sometimes in strabismus which is exceedingly interesting in this connexion. All these muscles, you will observe, have a very important influence upon the sense of sight, and form accordingly a part of the visual apparatus. In studying the operation of the organs of special sense we shall find that they consist, in the first place, of a nerve endowed with special sensibility, and, in the second place, of various accessories intended to assist this nerve in the performance of its function and to render its action more perfect and complete. In the case of the eye, the retina is a nervous expansion capable of appreciating the impressions of light; but this retina, by itself, would make a very imperfect eye; and in order to make it act perfectly,

we have the different transparent media through which the light is made to pass before it reaches the more sensitive portion of the apparatus. But not only have we these different transparent and refracting media, but we also find that the eyeball is provided with different muscles, by which it is made capable of being turned in different directions, so as to catch the rays of light from whatever quarter they may come. If this power were destroyed, although the retina might retain all its properties, the useful operation of the eye would be practically suspended. Accordingly we find that these muscles are very important as aids to vision, and whenever one of them is paralysed, this paralysis must act indirectly to interfere with the perfect performance of the visual function. We find that when there is internal strabismus which is not very excessive, surgeons are in the habit of dividing the internal rectus muscle, in order to restore the parallelism of the axes of the two eyes. Now, it is not very certain what is the immediate cause of strabismus. Some have supposed it to be due to an imperfect development of the muscles themselves, while others have regarded it as a consequence of some nervous affection taking place during fœtal life; but, whichever of these conditions may be the original cause of the difficulty, the surgeon, in order to remedy the defect, divides the shortened muscle. You have undoubtedly noticed that in these cases, the instant that the shortened muscle is divided, the eye becomes straight. You have undoubtedly also wondered why it is that the eye after this operation does not turn outwards; for the external rectus muscle, being relieved of antagonism, would naturally, we should expect, act so as to produce the opposite state of things to that which had previously existed. The reason, however, why this does not happen, is that the position of the eyeball is not regulated altogether by its muscles, but also by the general elasticity of the eyeball itself, and of the surrounding tissues.

There are certain other points, in regard to the direction of the eyes, which are also exceedingly important. I have said in a general way that the parallelism of the two eyes is retained by the action of the muscles, combined with the elasticity of the tissues about the eyeball. It is important, however, to remember that the axes of the two eyes are not in reality precisely parallel. In some animals, we know that this difference is very marked. Take for example the fish, the axes of whose eyes are in exactly opposite directions. The eyes of the dog and horse have their axes also diverging. In the human subject we are in the habit of regarding the axes as parallel and directed straight forward, but in reality they are convergent. For on looking at any object at a distance of some feet, it is necessary that both eyes should be brought to bear upon it at once, and consequently the angle of convergence of the axes must be such as to correspond with the distance of the object inspected. The consequence of this is that the muscles moving the eyeball must act in a very peculiar harmony with each other. They must act *in harmony* with each other, but not *alike;* the two internal recti must draw the eyes together with a certain degree of force when we are looking at any object at a distance of a foot, and in a proportionately less degree at a distance of ten feet. It is only necessary to indicate this upon the blackboard in order to make it perfectly understood. You see that the angle of convergence of the visual axes is much greater for a near object than for a distant one. Now another consequence of the fact that the axes of the eyes in the human subject always converge is, that the subject viewed never presents the same appearance to both eyes. For example, if you look at this skull placed directly in front of the two eyes, it will not appear to both in the same position; but to the left eye it will appear to be turned a little to the right, and to the right eye a little to the left. Therefore each eye sees a different picture of the same object. But how is it, you may ask, that in that case we do not see two different skulls? The reason is that these two images are fused together and united by the two eyes, so as to create but a single impression on the sensorium. Now this union or combination of two different pictures of the same object produces in us the perception or impression of solidity and projection; for you see at once that it is only a solid and projecting body which can thus present two different figures to the two eyes. If we look at a flat object, it necessarily appears the same to each eye. For example, this picture of a brain, no matter how well drawn, cannot give the impression of solidity, since it makes the same impression on both eyes. If, however, you view the under surface of the brain itself, you will see a part of its projections with one eye, and a part with the other. The consequence of this is that we can never get the impression of solidity from one picture, however well finished, because it will always look the same to both eyes; and notwithstanding the lights and shadows may be all perfectly natural, we shall feel that both eyes see precisely the same thing, and that the object *is not* a solid body, although it may represent one. But these appearances may be represented by two distinct pictures; this is done in the instrument that is now known as the stereoscope. Here we have two pictures so placed in a box that one can be seen only with the right eye, and the other by the left eye, and, as you are all aware, the effect upon the mind is precisely that given by a solid projecting body. A great improvement has been made with reference to this instrument since the use of photographs; for instead of drawing the object, as formerly, first in one position and then in the other, all that is necessary is to have two photographic camera to operate upon any single object, and two images are thus made at the same instant.

There is only one other peculiarity with regard to the muscles moving the eyeball to which I will allude at present, viz. that the corresponding muscles on the two sides do not always act simultaneously. For in turning the visual axes towards the left, in order that the two eyeballs may act together, the external rectus muscle must contract upon the left side, and the internal rectus upon the right; thus by the operation of different muscles the two eyeballs are turned in the same direction. This, however, is only one instance among many of the peculiar relation which exists between the more essential parts belonging to the organs of special sense and the auxiliary organs upon which they depend for the application and perfection of their function. At the next lecture we shall pass on to the consideration of the great sensitive nerve of the face, viz. the fifth pair.

CLINICAL LECTURES.

DELIVERED IN THE N. O. CHARITY HOSPITAL

BY AUSTIN FLINT, M.D.,

PROF. OF CLINICAL MEDICINE AND MEDICAL PATHOLOGY, IN THE N. O. SCHOOL OF MEDICINE.

LECTURE IV.

ON FUNCTIONAL APHONIA—THE PATHOLOGICAL RELATIONS OF CHRONIC LARYNGITIS.

GENTLEMEN: The subjects of my lecture this morning are certain points relating to the study of pulmonary tuberculosis. I need not say how important is this study. The extent to which tuberculosis of the lungs prevails in all parts of our country, and the share in mortality belonging to this disease, are obvious considerations, investing it with great importance for the medical student and practitioner. In my clinical lectures here, together with my didactic course at the college, I shall aim to take up all the important points pertaining to the study of this disease. Circumstances render it convenient to-day to speak of the pathological relations to this disease of chronic laryngitis, and of certain physical signs denoting pulmonary cavities.

Here are two patients who are affected with chronic laryngitis. I shall address to each of them a few questions, in order that you may perceive their condition as regards the voice. Both, as you perceive, are able to speak in a

whisper only. They are affected with aphonia, or loss of voice. Let me direct your attention to certain characters pertaining to the whispering sound which they produce. You observe that when they attempt to speak, they produce a husky, or stridulous sound, and they seem to make a painful effort; they strive to bring out the voice, and fail to do so, except now and then, after a strong effort, they succeed in uttering a sound above a whisper, and then the sound is notably hoarse. Now, these characters always denote chronic laryngitis. We have only to hear the patients attempt to speak to make this diagnosis.

But chronic laryngitis is not always the morbid condition giving rise to aphonia. The voice may be lost from paralysis of the laryngeal muscles or of the spinal accessory nerve, which the researches of Claude Bernard have shown to be the nerve of phonation. The aphonia in the latter case is functional. I wish to point out to you certain circumstances distinctive of this latter kind of aphonia. I shall probably not be able to illustrate this affection, for I have only charge of male wards, and the affection, in the vast majority of cases, occurs in females. It may be that the wards of my colleague, Prof. Brickell, will furnish an example during the winter. In private practice you will occasionally meet with a female patient who has lost her voice. The first question, then, to determine is, whether the aphonia be due to paralysis or to chronic laryngitis. The history and associated symptoms will serve to settle this question; but you can generally settle it at once, when you request the patient to attempt to speak. If it be functional aphonia, the patient converses in a soft, low whisper. The whisper is not husky or stridulous. There is not a strong, painful effort to speak in a loud voice, as in chronic laryngitis. Perhaps the patient can at times succeed in recovering the voice; if so, the voice may be found to be natural in quality so long as it is retained. Patients with functional aphonia generally manifest more or less of the varied phenomena included under the name of hysteria. You may say to such patients that they will recover the voice sooner or later. The recovery is certain, but you cannot say how soon it will take place. The recovery is apt to take place suddenly and unexpectedly, and then the particular remedy which is at that time in use gets the credit of effecting a remarkable cure.

Aphonia from chronic laryngitis not only depends on a different local condition, but it has pathological relations quite different from those of functional aphonia. I have introduced these patients merely to show the characters to which I have called your attention, and I will now dismiss them from the amphitheatre. The patients having retired, let us now inquire what are the pathological relations of chronic laryngitis. With very few exceptions, it is either syphilitic or tuberculous. Laryngitis as a result of the syphilitic poison, according to my experience, is rare. As I have met with the affection, it has seemed in connexion with tuberculosis. Whether the local affection be tuberculous, that is, dependent on the deposit of tuberculous matter within the larynx, I cannot say from my own observations. I suppose it to be so. At all events, clinical observation shows that it is associated with tuberculosis of the lungs.

The existence of chronic laryngitis is, in itself, very strong evidence of the existence of pulmonary tuberculosis. I wish to impress this fact. When a patient comes to you, speaking in a husky whisper, or with a hoarse, broken voice, and you find that this has been his condition for some time, you may expect pretty confidently that an examination of the chest will disclose the physical signs of a deposit of tubercle. You may be almost sure of it, if the patient has lost considerably in weight, and has never had syphilis. The occurrence of hæmoptysis also gives great positiveness to this expectation. In one of the cases just introduced, the previous history points strongly to tubercle. This patient had measles in January last, and has not been free from cough since. Here, gentlemen, let me call your attention to an important fact which clinical observation has established. Measles occurring in a person predisposed to phthisis, is apt to be followed by the latter disease. A patient after measles, who may be regarded as in danger of phthisis from hereditary influence, or other causes, claims our especial care, in order to endeavor to prevent the deposit of tubercle.

In this case the symptoms of the laryngeal affection appeared in March last. The voice at first became hoarse, and was gradually extinguished. The patient has had several attacks of hæmoptysis, and has lost about thirty pounds in weight. On examining the chest I found unequivocal evidence of a moderate amount of tuberculous deposit.

In the other case the laryngitis has only been of about three weeks' standing. The patient has had syphilis, but this was nine years ago. An examination of the chest does not give positive signs of tuberculosis, but certain signs render the existence of a small deposit probable. I am inclined to think that this patient is in the incipient period of tuberculosis; if so, provided he remain in the hospital, and the progress of the deposit be not arrested, the physical evidence of the latter will become, bye and bye, more positive.

Let me say, gentlemen, that you must not expect to effect a cure in cases of tuberculous laryngitis. I have never known the cure to be complete, but I have sometimes observed considerable improvement from local and general measures of treatment.

Before I leave this subject, I wish to impress another fact which clinical experience teaches us. This is the more necessary at the present time because, for selfish reasons, pains are taken to inculcate in the minds of the public, if not of the profession, erroneous views. It serves the ends of the numerous irregular practitioners who treat affections of the air passages by inhalations and other topical manipulations, to say that pulmonary tuberculosis often commences in the throat and larynx, and if not arrested by timely measures, advances downwards, and, at length, attacking the lungs, eventuates in phthisis. So far from this being true, clinical observation shows that chronic pharyngitis is rarely associated with pulmonary tuberculosis; that the great majority of the great number of persons who suffer more or less from the former affection, has no predisposition to the latter affection, and that, in fact, chronic pharyngitis is evidence against, rather than for, the existence of tubercle. Clinical experience also shows that in cases of tuberculous laryngitis the pre-existence of tuberculosis of the lungs is the rule. The existence of chronic laryngitis, as already stated, is presumptive evidence that a deposit of tubercle in the lungs has already taken place. In making these remarks I do not wish to be understood that topical measures are not often useful in tuberculous laryngitis. But I wish to impress upon you that the popular idea respecting the progress of tuberculous disease from above downwards, is opposed by pathological laws established by clinical experience.

In now leaving this subject I shall pass around the larynx taken a few days ago from the body of a patient who died in one of my wards with pulmonary tuberculosis. The voice in this patient became husky a few weeks before his death. The vocal chords are thickened, and a small ulcer is seen near their anterior junction. Numerous small ulcerations are seen in the trachea below. The larynx in this specimen is but little affected. Not infrequently we find extensive ulcerations, destroying, to a greater or less extent, the vocal chords. In order to compare better the morbid appearances, I place by the side of the morbid specimen the larynx taken from the body of another patient dead with phthisis, the parts in this case being perfectly healthy.

Dr. Edward Rigby, President of the Obstetrical Society of London, died on Thursday, December 27th, aged fifty-six.

Original Communications.

PATHOLOGY OF TETANUS.

By W. HANNA THOMSON, M.D.,

OF NEW YORK.

If we took the views that have prevailed respecting the pathology of tetanus in their historic succession, we should naturally expect to find it about twenty-five years ago, a strongly marked inflammatory affection. Accordingly, French physicians are mentioned by Watson, who, acting on this idea, in one case abstracted fifteen pounds of blood in a few days, and in another bled the patient eight times and applied seven hundred and ninety-two leeches along the spine and to the epigastrium! The main difficulty with this theory is its hopeless disagreement with two sets of facts. One case occurs with every symptom before, and every sign after death, of inflammation of the spinal cord, but with no tetanus; while another dies from tetanus in its most typical form, yet no more traces of spinal inflammation are found than if he had been drowned. Either one of these would be sufficient to spoil the theory, even if inflammatory changes were discovered in a majority of the fatal cases, for they would then prove inflammation to be a symptom only, not an essential element of the malady; but in reality the post-mortem appearances relied on here, would also prove small-pox, typhus, and yellow fever to consist in inflammation of the medulla spinalis.

Structural changes may be allowed a high rank as interpreters of deranged function in *organic* life, for there we seem to have clear and evident relations between structure and function. Where one differs the other does, for the stomach no more resembles the kidney in appearance than digestion resembles excretion. But in the nervous system function appears with a seeming independence of structure well nigh complete and most mysterious, for who will yet venture to pick out from a handful of these white cords, the one which caused sensation or contraction, seeing, hearing, or tasting? Structure, therefore, teaches us less of function in the nervous system than in any other, and tetanus is a functional malady, therefore we must look for its explanation in the conditions of nervous action, not of nervous texture. If we would not look for traces in the brain of a pugilist to explain the terrific blows he deals out, we can hardly hunt for such interpretations of the similarly violent contractions of tetanus, which are as purely the results of nervous operations as are the movements in writing or walking. Nor need we, in abandoning structure as not yet a fit guide to nervous pathology, be compelled to attempt the explanation of the ultimate and primary nervous processes; for while we hold that these inscrutable operations are far beyond the reach of any reagent or any lens, yet there are links in the chain of causation which we may lay hold of; there are conditions requisite for all nervous action, a just and careful consideration of which, we think, may afford us the truest conception of abnormal states.

The great advance made in our knowledge of the nervous system within the last quarter of a century has given origin to a corresponding nervous theory of tetanus, which, with some modifications among different authors, is perhaps the one most generally accepted at the present day. It consists mainly in regarding the nervous system as a mechanism which presents some analogies to an electro-magnetic battery. Certain stimuli, centric or peripheric, call out a discharge of nervous force in currents, the course of which is normally under the guidance of the will, or takes certain predetermined channels, as when the stimuli starting from the surface of the air vesicles are reflected into the motor nerves of the respiratory muscles. In tetanus, a stimulus or "irritation" starts from a peripheral nerve, which has been implicated in a peculiar lesion, generally traumatic, and when it arrives at the spinal axis, everything thereafter goes wild. The nervous battery enters into a state of "exalted polarity," and a constant discharge is kept up into the voluntary muscles,* causing a cramp, which, according to its extent or violence, may either squeeze the patient to death, or wear him out with pain. "This excitation from transmitted local irritation, becomes persistent, and continues after the local cause has been removed, inducing reflex muscular movements."†

This view of the pathology of tetanus is certainly a great advance on the preceding, for it is based on the laws of nervous function as far as known. As they are enunciated at present, the spinal cord is the essential nervous system that works the body, the automatic motor apparatus, obeying at one end the influences from the cerebrum, and responding at the other to impressions from the periphery, or as they are termed "reflex" influences. In health the cerebrum is dominant as the rider on his horse; but in tetanus, the cord shows an exclusive and excessive susceptibility to reflex stimuli, so as to entirely overcome the control of the brain, and freed from all government, it rends the whole frame. "Similar motor discharges," says Romberg, "occur in spinal meningitis, but the despotism, if I may be allowed the expression, of the reflex function is wanting; which places the muscular apparatus of a prize-fighter under the control of a trifling irritation of the cutaneous surface."‡

This theory of tetanic irritation, as we may term it, is advocated by many of the first minds in the profession, and while we advance some considerations which would seem to point to a different pathology, we do not mean to be considered unmindful of its claims and authorities. And first, it appears to regard the subject in a manner too partial and exclusive, not only in the sense of the old saying, "the nervous system is the animal," but as if it had an absolute and separate existence, like a Geneva watch, containing within itself all the conditions of its operations. But in fact there is no division of the animal system less capable than it of independent action, and the main efforts of the other systems seem directed to the common end of furnishing a constant supply of nervous requisites, lest the briefest withdrawal of them should bring it to a complete stop. The pressure of the finger on the abdominal aorta, exposed in Sir Astley Cooper's celebrated operation, caused instantaneous *paralysis* in the parts beyond the obstruction, and all nervous phenomena will cease for ever after a few minutes' restriction to venous blood. Not only does this taper of life require a constant flow of its oil to maintain its light, but that must be of the right kind and composition, else we shall have all sorts of irregularities proportioned to the degree or kind of these changes. Therefore, as we can annihilate all nervous action by extreme hematic alteration, it can be seriously deranged by lesser changes in the circulation, and all experience teaches us that there is no more frequent source of nervous disease, with symptoms as purely nervous as tetanus ever shows, than there is in a perverted or altered state of the blood. Secondly, many cases of fatal tetanus occur in which the evidences of irritation are wholly wanting. We do not refer solely to the idiopathic form, but to not a few published cases following a traumatic lesion, in which, though there have been but feeble spasm, weak contractions, and little or no pain, yet all the symptoms of nervous exhaustion have nevertheless manifested themselves to the fatal end.

But perhaps the best mode of bringing out the manner in which these facts militate against the theory of irritation, is to argue the grounds of a counter theory, that tetanus is the result of the action, through the circulation in the nervous system of a virus or poison, which in its origin and character bears analogies to the virus of hydrophobia and

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* Todd's Clinical Lectures on Nervous Diseases.
† Erichsen's Surgery, 2d Eng. ed., p. 540.
‡ Romberg's Neuroses, Sydenham Trans. vol. ii. p. 107.

the poison of strychnine. In traumatic tetanus, it is owing to the generation, during the processes of healing or decomposition of the fluids about the wound, of an animal poison which, though it may be exceedingly minute in its original quantity (as is the case with the virus of rabies when introduced through some slight abrasion of the skin), yet in a favorable constitution it finds a pabulum brought to it by the circulation in which it is reproduced and multiplied like other zymotic poisons, until the "explosion" takes place, when from its affinities for certain tracts of the cord, and its action on them, the symptoms of tetanus are produced.

In attempting to bring out the analogies between tetanus and hydrophobia from the symptoms characterizing both, the aim is not to prove any relationship between the two, but simply to demonstrate that the pathological *states* in each are analogous, and therefore justify the conclusion that the *causes* of each are also analogous. Hydrophobia begins with a virus in a wound, but in many cases both in man and animals, owing probably to its not finding in the constitution the appropriate pabulum for its further development, it never advances a step beyond this, while in others (often a small minority of those inoculated) changes, the requisite length of time for which varies in each case, go on, until finally the specific symptoms set in. To this we have in traumatic tetanus a wound, a certain state of the constitution necessary for the wound to be followed by tetanus, and a period requisite to elapse before the disease can be developed, and which in length presents exactly similar variations with the corresponding period in rabies. In hydrophobia the specific symptoms begin with a local twinge, pain, undefinable sensation, or "irritation," in short, in the seat of the original wound, followed by a catch in the breath from spasm of the diaphragm, spasms of the muscles about the neck and throat, but especially by an excessive sensibility of the *reflex function* of the spinal cord, and finally fatal nervous exhaustion. But we can hardly do better in showing how near this is to the essential pathological state in tetanus, than by grouping some of the common features of the two diseases, as we find them in the accurate and scientific descriptions of Romberg, one of the ablest advocates of the irritative theory of tetanus.

Tetanus.	Hydrophobia.
. . . An interval of varying length elapses between the period of injury and the outbreak of the disease. Prodromi occur at this time, such as a return of pain and tenderness in the seat of injury even after it has healed and cicatrized. Horripilations are frequent, and may amount to violent rigors [numerous authors mention a vague sense of dread and fear, disturbed dreams, etc.]. Pain in the neck accompanied by slight dysphagia also occurs. The outbreak of the spasmodic attack may occur at the seat of the injury or at a distance from it. The reflex tension is extreme from the commencement. Motor discharges into the muscles occur spontaneously, or they are excited by the slightest irritation, by touching the skin, by commotion of the surrounding air, by noise, by attempts at deglutition, or even by the effect of the imagination; the mere desire to drink or to attempt any movement, causes the patient to shudder and start, which prevents him from carrying out his intention. Death ensues from strangulation, with violent convulsive throes, or more rarely in consequence of extreme exhaustion during the remission, after a deceptive period of rest or relaxation. (Pp. 100–107.)	. . . From the commencement there is an excess of reflex tension, and convulsive agitation results from the most trifling irritation. Horripilations, terror, ill temper, etc., present themselves as precursors. A painful sensation in the bitten wound, which has already cicatrised, precedes the outbreak of the disease, the sensation passing towards the spinal cord. Inflammation of the superficial nerves lying under the bitten part, has been occasionally observed. The most extreme sensibility is manifested to the most indispensable vital stimuli, air and water; not only a current of air, produced by fanning, raising the bed clothes, opening a door or window, but slighter oscillations of the atmosphere imperceptible to the healthy individual, are capable of exciting respiratory spasms and universal convulsions. To the spasms of deglutition and respiration trismus and opisthotonos may be superadded. Death ensues from apoplexy or asphyxia during a paroxysm of convulsions, or it may be from extreme exhaustion, quietly, even under the false semblance of incipient recovery, after the capability to drink had returned. This excess of reflex action places the disease in the category of tetanic affections, among which its exact place is defined by the symptoms.—(Pp. 133–149.)

The variable period between the infliction of the wound and the resulting tetanus would, but for the irritative theory, be called the period of *incubation*, as is its analogue in hydrophobia. "Instances are on record," says Romberg, "in which the tetanus is said to have supervened at the moment of injury, but it is necessary that an interval should elapse between the period of injury, and of the eruption of the disease, in *order that the spinal cord be placed in that degree of reflex tension*, which we can produce at once in decapitated animals by wounding the spinal cord, or in other cases by poisoning. In these cases, therefore, mere twitchings must have been confounded with tetanus, or the latter was already making its approach." (p. 108.) But it is especially important for us to recognise the essential pathological states of the two diseases, viz. 1, reflex irritability of the same portions of the spinal cord, and 2, nervous exhaustion. We are too apt to be led away by certain striking features of tetanus, such as the severe contractions and the attendant pain, and to consider *them* as the primary elements of the disease. But though we can by chloroform often remove completely both these appalling symptoms, and the sufferer appear for a time as free from disease as a sleeping child, yet the fatal march of the malady is not arrested or changed in the least, death occurring about as soon when the cramps have been controlled, as when they are left to themselves. How entirely independent tetanus may be of either of these elements, or of any apparent irritation, is strikingly shown by the report of the following case, by the celebrated Mr. Solly.

"A boy, aged fourteen, was brought into St. Bartholomew's Hospital with a hand greatly mutilated by machinery. On the thirteenth day he complained of stiffness in the back of the neck. When I saw him, at the expiration of some hours, spasm of the muscles had extended to the chest and abdomen, but none of the muscles were severely or painfully contracted. Still the signs were distinct. The boy was the subject of tetanus, and being placed under the influence of chloroform, I amputated the hand immediately above the wrist-joint. On recovering his consciousness it was obvious that what had been done for the boy, whether the removal of the hand or the administration of chloroform, had been in the direction of good; the pulse had fallen from 130 to 100, and the rigidity of the muscles was greatly diminished, and continued so. The pain was reduced, he could open his mouth to an extent sufficient for the introduction of food. On the following day I found he had passed a tolerably good night, the rigidity of his muscles had not increased, on the contrary, it appeared somewhat lessened. By two o'clock on that day the boy had consumed four ounces of brandy, half-an-ounce of the spirit of ammonia, and eighty drops of laudanum. Still I had no excuse for the trial of woorara, for it was obvious that his dangerous condition was not attributable to the morbid contraction of the muscular system, but to something beyond it. On the third and fourth days his condition was not materially changed. He took food without difficulty, as also his medicine at the required intervals. The ammonia was increased to drachm doses. On the fourth day the rigidity of his muscles had not increased, and those of the extremities were entirely free from spasm. On the morning of the

fifth day he had taken without producing any marked effect on his system for good or evil, about forty-eight ounces of brandy, one ounce of tinc. of opium, and four ounces of spirit of ammonia. And we may form some judgment of the prostrating influence of the disease under which this poor boy was laboring, when we consider that such an enormous power was inadequate to produce the smallest impression on his system. On the evening of the fifth day he died.... We are too apt to fix our attention on the local spasm of the muscular frame, as though that condition of the system constituted the essence of the disease, of which it is only a symptom. We rather search for remedies that will abate spasm, than for such as will attack its cause. The above case exemplifies negatively this fact. *The boy died of tetanus, not of spasm.* At no period of his case was the contraction of his muscles so rigid as to cause pain of a severe character... he gradually sank from utter prostration of nervous power, which every remedy employed was incompetent to contend against." (*Lancet, Sept.* 1860.)

(To be concluded.)

A NEW OPERATION FOR THE RADICAL CURE OF HERNIA.

By J. J. CHISHOLM, M.D.

PROFESSOR OF SURGERY IN THE MEDICAL COLLEGE OF SOUTH CAROLINA.

[Reported by H. Baer, Student of Medicine.]

Few subjects have engaged so much attention within the last few years, both among European and American surgeons, as this of the "Radical Cure of Hernia." This is due, doubtless, both to the exceeding frequency of this disagreeable condition, as also to the various methods recently proposed for effecting such a cure. Gerdy, among modern surgeons, led the way; Wütze, Rothmund, Schuh, Langenbeck, and others, improved upon his method. All these operations propose to effect the cure by inserting a plug into the inguinal canal, and by the irritation thus produced, to excite sufficient inflammation in its coverings, to obstruct, if not to occlude this canal. Each new operation, in its turn, claimed the most splendid results. The successful cases were published by hundreds; but the thousands of failures were unheard of. This was doubtless owing to the fact, that these results were always published soon after the operation; too early to decide positively, whether they would be permanent or not, for the deposit of lymph forming the adhesive bands is very apt to be absorbed, and upon any unusual muscular exertion or "strain," the hernial protrusion reappears, very much to the dismay both of patient and surgeon. Indeed, we may not venture too far in asserting, that the successful cures are, perhaps, generally, cases where the lesion is of recent occurrence, or in individuals but little exposed to undue muscular exertion, and who would find sufficient relief and protection from a good truss. Wütze's operation is applicable only in recent, small, oblique herniæ; and where we can select our cases, we perhaps may be rewarded with a success of fifty per cent.; but in average cases, failure is the rule, and a radical cure the exception. Nor is this all; for in many cases of failure after this operation, we have the canal more dilated than before, and hence a greater hernial protrusion. This operation, and the principle upon which it is based, are now generally discarded, owing to the fact that Mr. Wood, of London, some two years ago, discovered and published a new and far superior method for effecting the same end. He makes a small subcutaneous incision in the upper and anterior portion of the scrotum, dissects the fascia, and invaginates it into the inguinal canal, then passing a needle with thick thread through three points in the canal, viz. the conjoined tendon, the triangular fascia, and the external pillar of the ring close to Poupart's ligament. The ends of the ligature are left in the two former punctures, and a central loop in the latter, passing through the pillars of the external ring, and through the same opening in the skin of the groin. A compress of glass or wood is then tied firmly upon the axis of the canal, by passing the ends of the ligature through the loop, and tying over the compress. The advantages of this operation over all its predecessors are obvious, and its successes in a high degree encouraging. It is adapted to inguinal herniæ of every variety, large and small, old and recent, direct or oblique. Even in case of failure, the patient would be in a better condition than before the operation.

Dr. Chisholm, Professor of Surgery in the Medical College of South Carolina, after seeing Dr. Wood operate in June, 1859, thinking that the incision in the skin was unnecessary (as the invagination of the fascia alone did not obviate the objection Mr. Wood expected to meet by this process, viz. the prevention of any dragging upon the invaginated scrotum), modified that operation, first, by invaginating *without* incision, as in Wütze's; and secondly, by only making two punctures instead of three, Dr. Chisholm believed that a single loop passed from without through the two columns would be sufficient to obliterate the ring, and keep the columns in apposition, until the lymph effused in the site of the thread would cause adhesion, and permanent obliteration of the ring, restoring the external oblique to its primitive condition, before its fibres had been forced asunder by the protruding body. The first case operated upon in this manner was in November 18, 1859, and the operation has been often since repeated, both by himself and others in this city, with the best results. Dr. Chisholm published this operation in the Charleston Medical Journal for May, 1860. In the London Medical Times and Gazette for Feb'y 4, 1860, two cases are reported by Messrs. Curling and Ferguson, adopting nearly the same modification upon Wood as this of Dr. Chisholm. The honor of priority, however, belongs to the American surgeon, Dr. G. having operated Nov. 18, Mr. Curling Dec. 1, and Mr. Ferguson Dec. 17, 1860. Other modifications of this operation have since been suggested, but of minor importance, such as the different curves of the needles employed, the clamp upon which the ligature is fastened externally, as also the material used for the suture. Although Wood's operation is a great improvement upon all previously devised, it still has its disadvantages. Even if we overlook the incision which complicates the operation, and would deter many from availing themselves of its advantages, we still have the length of time necessary to keep the patient in bed—not less than from twenty to thirty days; after that, a truss has to be worn for a considerable period, to counteract any undue pressure upon the recent inflammatory agglutinations. The suppuration from the sutures, and the continuous pain connected with the inflammation, are likewise disadvantages. These, and other considerations, have induced Dr. Chisholm not to rest satisfied with the successes gained, even by his modification of Wood's operation, but to add a still greater improvement, simplifying the entire procedure, and obviating nearly all the objections which have been, or may be urged to Wood's.

The new operation is as follows:—

The scrotum having been invaginated upon the finger, as the only mode of guiding the needle in its passage—a long strong curved needle, fixed firmly in a handle, and armed with silver wire, guided by the finger, transfixes the scrotum at the apex of the invaginated portion, passes through the internal column, and appears through the skin of the abdomen, when one end of the wire is drawn out. The point of the needle is then drawn backwards, and disappears again in the canal. Its direction is then changed. Whilst still imbedded in the scrotum, and guided upon the finger, its point is made to traverse the external column of the ring near Poupart's ligament, lifting the skin of the abdomen. By gliding the skin upon the needle, the point appears through the small puncture made by the first passage of the needle; when the other end of the wire is seized, the needle is unarmed and withdrawn through the scrotum.

The finger is now removed from the canal, and the two ends of the wire being drawn upon the loop dissects the cellular tissue up to the columns, which it hugs closely. By twisting the two ends of the wire the columns are felt approaching, until they are brought in such close apposition as to allow nothing to pass between them—the spermatic cord, in its exit, filling up all the available space remaining of the ring. When the ring is felt closed, the twisted wire is drawn firmly outwards, and clipped off as close as possible to the skin, so that when the traction on the skin of the abdomen is removed, the gliding back of the integuments to their normal position, conceals completely the ends of the small loop of silver wire. The scrotum has already fallen back to its pendent position, and the only trace of an operation having been performed is in the two small punctures, one in the scrotum, the other in the abdomen, which require a careful search to find them, and which will heal up in a few hours, hermetically incarcerating the silver wire.

A moderate inflammation follows this operation, without much swelling or pain, and without any fear of suppuration. The wire is soon imbedded in a lymphy deposit, which will not only inclose it, thus isolating it from the tissues, but at the same time agglutinates the columns together as an additional security to the success of the operation. The patient is kept quiet in bed for four or five days, until the inflammatory stage passes; opium having been given to insure rest, and prevent any action on the bowels. When the inflammatory stage has passed, a cathartic is administered, and the patient can quit the bed, and in a few days resume his occupations. The silver wire remains as a permanent application. An essential element in the success of the operation is that the loop encircle the columns of the ring near their points of attachment to the pelvis; otherwise the columns cannot be approached, the ring remains open, and the results can only be negative. If this step of the operation be carefully followed, a radical cure may nearly be guaranteed.

The advantages of the operation are as follows: the patient is not detained in bed on his back for three or four weeks as in Wood's or in Wutzer's. No excess of inflammation is to be apprehended. No subsequent use of a truss is required, and there is no fear of a return of the rupture from the giving way of the recently formed but still delicate adhesion, through any undue muscular effort on the part of the patient, for the reliance is upon the silver bond—the surgeon having provided his patient with a never-failing silver truss. The operation is applicable to herniæ of every character. When the protrusion is large, and the ring voluminous, several points of suture might be applied, through the same puncture in the scrotum, and skin of abdomen, taking advantage of the facility of gliding these integuments over any portion of the external abdominal ring.

The objections which may be urged against this operation will probably be, that the silver wire will always act as a foreign substance; but from the experience of Drs. Sims, Simpson, Moffatt, and others, we may assume that this is not the case, and from experience in its application in hernial operations, we know that it can remain harmlessly imbedded in the tissues for any length of time. Of course, flax or silk sutures cannot be used in this subcutaneous operation. Another objection perhaps may be, that the cut-off twist of the wire will irritate and ulcerate the skin. But this has not been found so, for the skin here is very loose, and therefore not so liable to be injured by a small foreign body beneath it; and we have every reason to believe, that a deposit will soon encase it, and render it permanently innocuous. These views were first practically carried out upon the living subject, Nov. 17, 1860, at the surgical clinique, in the presence of the class and a number of professional gentlemen. Three cases have since been operated upon. And as herniæ are exceedingly common lesions among the laboring negro population of the southern states, and as the carelessness of this class of people renders the advantages of a truss nugatory, ample opportunity will be afforded of testing in time the validity and superiority of this operation over all other modes of radically curing inguinal hernia.

Reports of Hospitals.

NURSERY AND CHILD'S HOSPITAL.

[Reported by J. Lewis Smith, M.D., Curator.]

The case narrated below is interesting, on account of the extent of the fibrinous exudation, which was such as to render any method of treatment unavailing. Another feature of interest was the colitis. Thickening and vascularity of the mucous membrane of the colon, have been present in a large proportion of the autopsies made in this institution, although the derangement of the bowels may have been so slight as scarcely to attract attention. There has often been only moderate looseness without pain, tenderness, or any noticeable febrile reaction; the stools being perhaps green and rather more watery than natural. Ulceration of the mucous surface has rarely been observed in these cases, except in the colitis connected with the summer complaint, or the so called cholera infantum, in which it is common.

December 5, 1860.—Service of Foster Swift, M.D.—H. T., one year old, and previouly healthy, was observed to have moderate looseness of the bowels, in the latter part of November, such as often results from trivial causes. It was, however, only partially checked by treatment, and he began to lose flesh. About the first of December, hoarseness of the voice and a cough, but not clear or ringing, were superadded to the abdominal symptoms. The obstruction in the larynx increased, but it was not at any time so great as to threaten suffocation. He gradually failed, and died exhausted on the 5th of December.

Autopsy.—The fibrinous exudation extended from the tip of the epiglottis to, at least, the third or fourth division of the bronchial tubes; it was easily detached, and the membrane underneath was intensely injected; the minute bronchial tubes contained no fibrin; the left lung was readily inflated, and of healthy appearance, except a little of the posterior portion of the lower lobe; lower and middle lobes on the right side, solid, non-crepitant, and of a dark red color. On the posterior surface of this lobe, and in the fissure between it and the rest of the lung, were adhesions; the solid portion of the lung contained the "compound granular corpuscles," and the smaller round granular cells, which pathologists now recognise as indicative of pneumonia; mucous membrane of the stomach, and small intestines, healthy, with the exception of a few vascular streaks upon the former; that of the colon, especially the descending portion, contained vascular patches, with but moderate thickening, and no relaxation; the heart, liver, spleen, and mesenteric glands were healthy, unless slight enlargement of the last; the kidneys had a lighter hue than natural, but under the microscope, the Malpighian bodies and the tubuli uriniferi presented the usual appearance.

UNIVERSITY MEDICAL COLLEGE.

PROF. ALFRED C POST'S SURGICAL CLINIC.

January 5, 1861.

Enlargement of Tonsils; Excision. Mulberry Calculus; Bilateral Operation of Lithotomy. Dislocation of Head of Os Brachii on the Dorsum of the Scapula; Anchylosis.

Case 25. *Enlargement of Tonsils—Operation.*—The patient, æt. 17, before you, gentlemen, has a chronic enlargement of both tonsils. This condition interferes more or less with the functions of respiration and deglutition; it causes the patient to snore when he sleeps; it renders the patient

liable to frequent attacks of acute inflammation of the fauces; it makes the voice thick and indistinct in speaking and in singing; and it sometimes impairs the hearing by encroaching upon the orifice of the eustachian tube. There is not much to be gained by internal medication, or by local applications, in reducing the volume of the enlarged tonsils. Excision is the appropriate remedy. The operation may be performed by means of a sharp hook and a bistoury; but the depth of the part to be removed, and the difficulty of keeping the mouth open, occasion some embarrassment to the operator. There is also some danger, when the operation is performed with these instruments, that the incisions may be too deep, and that troublesome hemorrhage may ensue. The best mode of removing an enlarged tonsil is by means of an oval ring which embraces the tumor; the ring consists of three blades, of which the middle one moves between the other two, and, having a sharp edge, it cuts off the projecting portion of the tumor, which has been previously fixed by piercing it with a sharp spear. In operating on the left tonsil, it is most convenient for the surgeon to stand or sit before the patient. In operating on the right side, it is easiest to operate in the dentist's position, that is, standing behind the patient. (The professor then removed the left tonsil, and afterwards the right.)

Case 26. *Mulberry Calculus—Lithotomy.*—This boy, L. C., æt. 7 years, was brought to our last Clinic. He is, as you perceive, a child of very imperfect physical development for his age. His father says that he has had pain and difficulty in voiding his urine, since he was a year old. The paroxysms of pain are sometimes very severe, and at such times he presses upon the glans penis, and pulls the prepuce. These symptoms indicate the strong probability of the existence of a stone in the bladder, but the diagnosis of stone can never be made perfectly clear without a physical exploration. I accordingly introduced a steel sound, and felt the sensation occasioned by the contact of the sound with a hard substance in the bladder; an obscure click could also be heard when the point of the sound was brought suddenly into contact with the stone. There are six methods of removing stone from the bladder; 1st. *Lithoboly*, or the expulsion of the stone with the stream of urine. This is practicable only when the stone is of very small size. 2d. *Lithospasty*, or the extraction of the stone through the urethra with long forceps. This method is applicable only to small stones, but a little larger than those which can be expelled with the urine. 3d. *Litholysy*, or the solution of the stone in the bladder, by solvents injected into that cavity. This method is only applicable to calculi composed of the phosphates, and of a very moderate size. 4th. *Lithectasy*, or the dilatation of the neck of the bladder, and the subsequent extraction with forceps. It is chiefly in the removal of stones from the bladder of the female, that this practice is resorted to. A modification of this method has been employed in the male subject, viz. making an incision into the membranous portion of the urethra, and then dilating the neck of the bladder. The operation has only been performed in a few instances, and the results have not been satisfactory. 5th. *Lithotripsy*, or *Lithotrity*, consists in crushing the stone within the bladder, and reducing it to fragments of such a size that they can be expelled through the urethra. I regard this as the best operation for the removal of calculi of moderate size from the bladder of an adult subject, when there is neither stricture of the urethra, nor enlargement of the prostate, nor any remarkable irritability of the bladder, provided that the stone is too large to be removed by the first or second method. 6th. *Lithotomy*, or the extraction of the stone through an incision made into the bladder. This is the best operation for children; and also for adults, when the stone is more than an inch or an inch and a quarter in diameter, or when the bladder is irritable, the prostate enlarged, or the urethra contracted. There are three regions in which the incision may be made into the bladder. 1st. In the perineum. 2d. Through the rectum. 3d. Above the pubes. The operation through the perineum is preferred by the majority of surgeons. There are two principal methods of performing it, viz. the lateral operation in which the incision is confined to the left side of the perineum, and the bilateral operation in which the incision is on both sides. The bilateral operation is the one which I usually prefer, and is the one which I propose to perform in this case. I shall commence the operation by introducing a grooved staff through the urethra into the bladder. I shall then make a crescentic incision through the perineum, the concavity looking towards the anus, and at a distance of about three-quarters of an inch from it. With a sharp-pointed bistoury, I shall then open the urethra into the groove of the staff, and then introduce into the bladder the rod of my double prostatotome, and push on the blades into the bladder, dividing the prostate on each side, after which the operation will be completed by introducing the forceps, and extracting the stone. The safety of the patient depends very much on making a free external incision, and on confining the incision into the neck of the bladder strictly within the limits of the prostate gland. In this way, the danger of infiltration of urine is most effectually guarded against. (The patient was then placed on the table, and was brought into a state of anæsthesia by the administration of the vapor of sulphuric æther, when the operation was performed as above described. The stone, which was extracted, was of a small size, weighing only fifteen grains; its surface was uniformly rough. Prof. P. then introduced his finger into the bladder, and explored its cavity, but could not detect any other calculus.)

COLLEGE OF PHYSICIANS AND SURGEONS.

PROF. PARKER AND MARKOE'S CLINIC.

January 7, 1861.

Case XXII. *Inguinal Hernia.*—The patient, a boy nine years' old, the mother states, has always enjoyed good health. When he was six weeks old she noticed, for the first time, a swelling of considerable size upon the left side of the scrotum, which entirely disappeared at times, returning whenever the child made any exertion. She consulted a surgeon in regard to it, who pronounced it congenital hernia, and applied a truss over the parts, which for ten days has prevented it making its appearance.

Remarks.—By the term congenital hernia we understand, that a portion of intestine lies in the cavity of the tunica vaginalis, in contact with the testicle. The disease is common in childhood as the result of the non-closure of the passage through which the testicle has descended; any sudden effort, however, on the part of the patient, at any time of life, may force a portion of intestine through the septum, producing the same variety of hernia. This is much more liable to occur in young men, between the ages of eighteen and twenty-five, than in young children, on account of the greater tendency to sudden and violent exercise at that period of life.

Treatment.—Consists in the reduction of the intestine, and the retention of it there, by a truss, until the passage by which it descended has become occluded. In a child of this age, the indications are easily carried out, the instrument commonly producing a radical cure. But in the adult we rarely succeed so well; the truss being merely a palliative measure. In such a child as this the common snake truss is the best.

Case XXIII. *Encysted Tumors of the Scalp; Operation.*—Margaret B., æt. 68, presents herself with two tumors, developing themselves in the cellular tissue beneath the scalp. She has noticed them for a number of years. The smallest one is about the size of a filbert, oval, smooth, movable under the integument, and to the touch appears solid. The other is of more rapid growth, and much larger, being about the size of a pullet's egg; it is also round, smooth, movable under the integument, but has a fluctuating elastic feel. They have never given her any trouble, save the annoyance created by their simple presence.

Remarks.—The pathology of these tumors is simple. They are composed of a dense cyst of cellulo-fibrous tissue, containing a cheesy looking substance, composed for the most part of fat, cholesterine, epithelial scales, and oily serum, mostly occurring as the result of obstruction to the excretory duct of the sebaceous gland, and loosely connected to the subjacent cellular tissue. Their tendency, if untouched, is to become thinner in consistency; for the cyst to take on inflammation and suppuration; therefore, the proper treatment is removal; being careful that no portion of the cyst remains, or reproduction will be the consequence.

Operation.—There are two methods of removing these tumors, which can be illustrated upon this patient. The first is to lay the cyst open by a simple incision, and then seizing with a pair of forceps and removing it from its loose cellular bed. This operation is best performed upon those tumors of firm, semi-solid consistence, as is the case with the smaller of these. The second operation consists in carefully dissecting off the integument and cellular tissue from the tumor, and then enucleating it entire with the handle of the scalpel; taking great care not to wound the cyst, or the fluid will escape, making it a bungling operation. In this particular case, the tumor being large, a portion of the integument has been removed with the cyst, in order that the lips of the wound may come in better apposition. The after treatment consists in applying a compress of lint over the part.

American Medical Times.

SATURDAY, FEBRUARY 2, 1861.

THE STUDY OF MEDICAL ETHICS.

The Code of Ethics of the American Medical Association has now been the recognised standard of medical morals in this country for nearly fourteen years. It was prepared by the wisest members of our profession, among whom we recognise the honored and trustworthy names of Drs. Bell, Hays, and Emerson, of Philadelphia; Prof. Clark, of N. Y., and Prof. Arnold, of Ga. When submitted to the Convention of 1847, the Code was adopted unanimously. Since that period no one has dissented from its provisions, but every legitimate medical organization in the country has adopted it; and thus it stands as our organic medical law. This document defines with admirable simplicity and purity of language, and with the nicest appreciation of the exalted spirit of scientific medicine, the duties of physicians to each other as members of a liberal profession, and the reciprocal obligations which exist between them and the individual members of society. It is, in a word, the guide to the formation of a true medical character. And yet how little is this regarded by physicians, and how few are familiar with its admirable provisions? Of the hundreds of graduates who are annually introduced to the ranks of the profession, how few are aware of even the existence of such a chart to professional excellence, much less imbued with its spirit?

There are at this time between four and five thousand medical students receiving instruction at the various colleges in this country. These young gentlemen are daily and sufficiently drilled in anatomy, physiology, chemistry, microscopy, obstetrics, and therapeutics, while they are employed far into the night in dissecting, and thus verifying upon the dead subject the text of the morning lecture. Class after class thus enters the college, is graduated with honors more or less emphatic, and joins the great procession of hygeian ministers in the world at large. It is usual, on the commencement day, for some venerable physician to address the departing graduates; to dwell upon the duties and responsibilities awaiting them in their new relations to society; to encourage them by the hope of success; to stimulate their ambition by the example of great lives which have adorned the profession; then, with a parting blessing, the young Esculapians are dismissed to their great encounter with the realities of medical practice.

Now, except in the commencement address, where accidentally it may be alluded to, we would ask whether it is usual in any of our medical schools to deliver any *set* lectures on Medical ethics? Is even *one* annually and invariably delivered to the students? We ask this for information, because we have never heard that any such dissertations were read as part of the curriculum of instruction.

Admitting this to be so, the inquiry naturally arises whether our colleges can be said to do their whole duty towards students in fitting them to practise successfully, when they fail to instruct them in those rules of professional intercourse whose observance brings them, antecedently even to intellectual merits, the approbation of their fellow-practitioners, and on the contrary, whose violation insures them the certain and immediate reprobation and scorn of their professional brethren. If an individual wishes to rise to meritorious eminence in any profession he must, first of all things, secure to himself the sympathy and the respect of his fellow-laborers. Without that he can never permanently sustain his status among gentlemen. For, although he may rise spasmodically, and flutter in mid air awhile upon waxen wings, yet the inexorable sunlight of Truth will speedily dissolve these frail supports, and leave him to flounder among the shoals of pretenders who swarm in the lower depths of the profession.

It does not follow because a man's brain is as full of learning as Lord Bacon's, that he may not at the same time be a most unmitigated boor, whose self-conceit or selfishness lead him alike to trample upon the rights and the feelings of his professional brethren, in his insensate haste to become rich, or to gain the bubble reputation. These things are of too frequent occurrence not to have been noticed by all, and it is not difficult in any community to point out some physicians who, great enough in intellectuality, are yet moral idiots in respect to the dignity and the honor of the profession they follow. Such men, whatever their talents, their wealth, or their factitious distinctions, are still living in virtual outlawry to the canons of medical ethics, nor can the ephemeral praises of an indiscriminate press indemnify them for the lost sympathy and respect of their fellows. Pitiable indeed is the condition of that man who is shunned by his peers, whose name provokes only contempt, and who is dismissed from the thoughts as one fallen from the high estate of a Christian gentleman and an honorable man.

Let these things, in all their length, breadth, and strength of application, be taught to the young men in our medical colleges. Let them understand that the moral side of a physician's character is quite as important as the intellectual. Nay, that in advance even of any knowledge of his intellectual capacities, the public will be favorably inclined

towards him whom his fellow-practitioners recommend and advance. It would take no large amount of time, nor make any serious interruption in the course of medical studies, to have one lecture a week delivered on the subject of professional ethics. There are gentlemen enough in and out of our medical faculties who would be happy to do thus much to preserve the dignity of the profession; who would be willing to instruct students in that code of medical ethics which is the basis of professional respectability. And, in particular, it will be a source of satisfaction and pride to our colleges to know that, besides making physicians, they have made men of refinement and dignity. Each faculty in its own college thus becomes a *humanizer* as well as an educator of young men.

In this fervent hope we now commend the subject to the earnest attention of our medical schools, not doubting that they will see in these crude suggestions the inklings of so much truth as will prompt them to incorporate in the course of their instruction some few lectures on medical ethics.

THE WEEK.

Insane persons, with depraved and dangerous propensities, are so frequently permitted to roam unrestrained about our streets, that we are prepared to witness tragedies the most horrible and sudden at any time and in any place. On the 7th of December last, this city was thrown into a fever of excitement at the report of the shocking murder of Mrs. Shanks, a worthy seamstress and shopkeeper, while at her breakfast in the parlor adjacent to her store. This fiendish act was perpetrated in an open apartment on a busy street, within a few steps of Broadway and Union Square. The murderer was a lad well known in that neighborhood as a strange and sullen fellow, and to the judicial authorities he was known as a person of unsound mind and uncontrolled propensities to commit crimes against property and life. To the police he was known as an epileptic whom they often rescued from harm when suffering his unfortunate seizures in the streets. He sometimes had as many as twenty-five of these fits in a single day, and his mind was so affected that his parents could do nothing with him. After having been four months in a Lunatic Asylum he was permitted to return to his parents' home and go at large in the city. Having at one time set fire to some shops and a public school-house, he was judged guilty by the prosecuting officer, but allowed to go unrestrained upon condition his parents would remove him from the city! And now, at last, this miserable young man, after such a career and such unmistakable evidence of mental and moral insanity from a well known physical disease, yields to his fiendish impulses and brutally murders a worthy shopkeeper who has previously shown him peculiar kindness. The deed was manifestly an impulsive one, for strolling into the little store, and seeing the woman at her breakfast, he seized the knife with which she was cutting a loaf, and instantly cut her throat from ear to ear. After the deed he was shy and fearful, and he started upon an emigrant train for the West. Being arrested and returned he attempts to cover and deny his crime, as a sane man would do, and as a lunatic might, but without success. The fact of his insanity had been as clearly established before as it has been since the murder; and his dangerous proclivities were known. The prosecuting officer at first declined to admit the plea of insanity; but on Saturday last, after hearing the simple story of the lad's physical and mental disorders, he was promptly ordered to the State Lunatic Asylum.

In the name of humanity, we ask the State Legislature for a competent and properly authorized Commission of Lunacy, who shall exercise the proper advisory and legal direction over the insane.

Dr. Gunn's re-appointment to the Quarantine Health Office is regarded as gratifying testimony to that gentleman's personal and official integrity. The plans for reforming our Quarantine system having been definitively settled by the National Quarantine and Sanitary Convention, and the views and necessities of the commercial community having been clearly set forth by the Chamber of Commerce, the responsibility of encouraging and officially aiding the work of reform is now thrown upon the Health Officer; and by a cordial and fearless discharge of this duty he may be instrumental in giving to the city and port of New York such an improved Sanitary System and such reforms of Quarantine as the necessities of this great centre of population and commerce now require. A greater privilege or a higher honor no physician could desire.

The error in the date of one of our Society Reports which furnished a contemporary with the subject for an editorial, was purely accidental. The deliberate charge of an intentional falsification of dates is utterly unworthy.

We desire to call attention to the letter of Dr. Willard, Secretary of the New York State Medical Society, in another column.

Progress of Medical Science.

OPHTHALMOLOGY.

By Henry D. Noyes, M.D.

Glaucoma and its Treatment.—This disease, formerly set down as one of the *opprobria medicorum*, has of late years been attacked with new vigor to determine whether it cannot be made to yield to surgery, since the endeavors of medicine have proved of little avail.

The operation of Prof. von Graefe, of Berlin, promulgated in 1857, and which has excited much attention, consists simply in cutting off a piece of the iris. The membrane is drawn by forceps through a wound made at a point one line behind the juncture of cornea and sclerotica, and snipped off with scissors. The breadth of the piece removed is to be about one-sixth of the circumference of the iris. Great care must be exercised to cut off the excised portion clear to its marginal or ciliary attachment, and for this purpose the wound is made in the sclerotica.

The effect of this proceeding is, that whereas the eyeball was hard and tense, it afterwards becomes softer, and very seldom resumes its unnatural hardness. The reason why this effect follows is a subject of difference, and no explanation has been considered unexceptionable. Prof. Graefe thinks it is because, since the iris furnishes the aqueous humor, the extent of secreting surface being diminished the quantity of fluid is therefore lessened. Another reason he thinks to be that by cutting away the piece of iris, the power of accommodation is enfeebled, and this assists in the relaxation of the tunics of the eye.

Prof. Graefe thinks Glaucoma to be a choroiditis with serous effusion: and distension by superabundant fluid to

be the cause of the principal phenomena that mark the disease. These phenomena of distension, or "intra-ocular pressure," are, flattening of the cornea, pushing forwards of the iris and lens, pressure on the retina, and depression or excavation of the optic nerve:—the whole globe becomes hard to the touch. The dilation and immobility of the pupil, as well as the tormenting frontal headache, are explained by the effect of the distension upon the ciliary nerves.

Prof. Graefe's operation has been repeated in England at the Royal London Ophthalmic Hospital. The results appear in 84 cases of Iridectomy for Glaucoma published by Dr. Bader, House Surgeon. The operations were done by all the surgeons, and it is only necessary to mention the distinguished names of Messrs. Bowman, Critchett, and Dixon. Mr. Hulke has also published papers in the London *Medical Times and Gazette*, setting forth the results of Iridectomy in Glaucoma, and also in other diseases to which the operation has been extended, such as chronic and recurring Iritis, staphyloma of the cornea.

The 84 cases of Dr. Bader present the following results:—that is, the results upon vision, not the relief or aggravation of pain, which is also an important point in judging the operation. It must be premised that Glaucoma is divided into three states, viz. chronic, sub-acute, and acute. The first requires no explanation; the second or sub-acute differs only in duration of symptoms and degree of blindness. The acute has sudden extreme congestion of the conjunctiva and sclerotica, dilated pupil, and loss of vision with violent pain. Acute Glaucoma is acute choroiditis or irido-choroiditis, in which the characteristic product of inflammation is effusion of serum and not of lymph. Chronic Glaucoma may or may not be preceded by acute Glaucoma.

Chronic Glaucoma, 29 cases—operated on by Iridectomy.
Remained unchanged, 18.
Not as good as before operation, 1.
Improved, 10.

The improvement consists in obtaining perception of lights and shadows, 5; in the power to perceive large objects, 3; in the perception of small objects, 2.

Sub-acute Glaucoma, 29 operations.
Remained unchanged, 10.
Made worse, 0.
Improved, 19.

To specify the degree of improvement. Those who gained merely perception of light and shadow, were 8; could recognise the fingers and large objects, 4; with these may be ranged 4 who had "slight improvement;" could read ordinary print and see small objects, 3.

Acute Glaucoma, 26 operations.
Unchanged, 5.
Made worse, 1.
Improved, 20.

Of the improved one gained "perception of shadows;" 9 could recognise large objects; 10 could read ordinary type and discern small objects.

Total of 84 operations—made worse, 2; not benefited, 33; benefited, 49.

The ill success in chronic Glaucoma, and the greater success in acute Glaucoma, will not escape observation.

But Iridectomy is not the only champion that assails Glaucoma. Mr. Hancock, of the London Royal Westminster Ophthalmic Hospital, has formed another theory of the pathology of the disease, and devised another operation against it. He believes the ciliary muscle (tensor choroideæ) to bear an important part in the morbid process. He observed that many eyes affected with Glaucoma had a pear shape, that is, a constriction just at the situation of the ciliary muscle. He claims to have cut the knot which it has puzzled so many to untie. Mr. Hancock describes his manner of operating thus: "I introduce a Beers cataract knife at the outer and lower margin of the cornea, where it joins the sclerotica. The point of the knife is pushed obliquely backwards and downwards until the fibres of the sclerotica are divided obliquely for rather more than ¼th of an inch; by this incision the ciliary muscle is divided."

The constriction by the ciliary muscle upon the eye is certainly original with Mr. Hancock, and as a theory it presents more difficulties than that which Prof. Graefe maintains. Theoretical perplexities are not much to the point, however; let us turn to the results of operation. Before presenting the cases it may be remarked that the operation is easy of performance—does not require so much care as a proper Iridectomy; it seldom leaves any deformity of the pupil; the lens are not so liable to be interfered with. Mr. Hancock is strenuous in asserting that his operation cannot be designated as simply paracentesis scleroticæ, because that proceeding has been proved to be ineffectual, and in two of his successful cases there was no fluid let out of the vitreous chamber. The aqueous humor does escape, and in the majority of cases fluid flows from the vitreous chamber.

There were 31 operations, and of these

10 remained unbenefited, being left in the same condition as before operation.

6 recovered perception of light.

5 recovered perception of objects, being able to discern keys, pencil cases, tell the time, &c.

10 recovered the power of reading, none of them having been able to distinguish a letter, even, before operation.

Total of 31 operations—unchanged, 10; received benefit, 21.

Besides this general summary there is an abstract given of the particulars of 16 cases. In all, the prominent features of Glaucoma are described, such as hardness of the globes, immovable and dilated pupil, a greenish reflex from the fundus oculi, the lens sometimes opaque, pain, flashes of light, and impairment or loss of sight. In five cases the patients were suffering acute symptoms with injection of the conjunctival and sclerotic vessels and severe pain—these cases were promptly relieved by the operation.

In only a single case of the 16 is it expressly stated that the eyeballs had a pyriform shape, although in two cases the globes are said to be prominent. One would think that if constriction by contraction of the ciliary muscle were the important factor in the disease, Mr. Hancock, if he had actually observed it, would have recited this among the symptoms of the cases. If when it were present he noted it, it may be inferred that in cases where this symptom was not noted it was not present. This staggers confidence in Mr. Hancock's theory, although not militating against his practice. Another criticism that may be justly made, is that in cases where the lens and vitreous humor are not said to be turbid, ophthalmoscopic examination was so seldom made. In only one case are we informed of the condition of the retina, the choroid, and the optic nerve. The pressure upon the optic nerve and retina, as proximal cause of the loss of sight, is distinctly seen in excavation of the nerve; this condition, if it can be discerned, is too important to be omitted in describing a case of Glaucoma. One word more: the improvement of sight after Mr. Hancock's operations was not immediate—in most cases it slowly advanced during many months, and this must be borne in mind in trials of his operation.

Since the above was written, Mr. Hancock has contributed another paper on his operation. It is found in the Ophthalmic Hospital Reports, No. 12. He presents no new cases, but re-states his former views. He assigns a gouty or rheumatic diathesis as the original cause of Glaucoma, and the special symptoms to depend mainly upon constriction and hindrance to circulation in the region of the ciliary muscle. The ciliary muscle, he says, may be completely atrophied, or on the contrary thrown into undue action; in either case he thinks glaucomatous symptoms are capable of arising. He argues against the production of the symptoms by intra-ocular pressure, but he brings no facts or experiments to support his argument. His assertions on this point are by no means convincing.

In the *Medical Times and Gazette* for Oct. 27th, is a letter from the venerable ophthalmogist, Mr. Lawrence, relating in brief two cases of iridectomy for Glaucoma, which he had the opportunity of seeing in Mr. Bowman's practice.

Both were well marked cases, in persons above fifty years, and acute attacks. The operation done within a week. In both there was immediate relief from pain, and subsequent improvement of sight. In one case the improvement advancing during two years, until from mere perception of light, the power to read fine print was gained. In the other case both eyes were successively attacked and operated on. The first eye in three months advanced from ability to distinguish fingers, to reading Jaeger's No. 3 (Agate). The second eye, operated forty-eight hours after the attack began, could only discern large objects; two weeks afterwards could read No. 9 (Pica).

In reviewing all that has been done in four years to cure Glaucoma, the reported cases of benefit are too numerous, and the character of the operators is too exalted, to permit these efforts to be dismissed from consideration by witty sarcasm and ridicule.* Neither Iridectomy nor division of the ciliary muscle may be accepted in the final judgment of the profession as the proper operative proceeding, much less that the theories give the explication of the malady. While in chronic Glaucoma little benefit is obtained by any operation, it is evident that cases of Glaucoma less inveterate, have been ameliorated by both the methods of operation.

Reports of Societies.

NEW YORK PATHOLOGICAL SOCIETY.

DR. E. KRACKOWIZER, PRESIDENT.

Stated Meeting, Jan. 9, 1861.

(*Continued from page 50.*)

EXSECTION OF HEAD OF FEMUR AND TROCHANTERS FOR MORBUS COXARIUS.

Dr. Jas. R. Wood exhibited a specimen of the upper portion of the femur taken from a lad 17 years of age, who was admitted to Bellevue Hospital about a year ago. The patient had symptoms of hip-joint disease, which were somewhat obscure, but sufficiently pronounced to warrant the commencement of treatment for that disease. He remained in the Hospital until the July following, when an abscess formed, which discharged itself in the groin. I looked after him, said Dr. W., during the summer months, and caused him to be readmitted late in the fall. With the consent of my colleagues, two weeks ago last Saturday, I commenced the operation of exsection of the head of the femur, together with both trochanters, and about two inches of the upper end of the shaft. I commenced my incision three inches above the trochanter major, and extended it for two inches below, cutting down upon the trochanter and making my way along the surface of the bone to the joint. Opening the joint, which was effected very readily, I discovered that the head of the bone was very much diseased, and also the upper end of the shaft. I then found that the usual plan of dislocating the head of the femur could not be followed, which was on account of the enlargement of the upper end of the bone, being twice its natural size, denuded and eburnaceous. The specimen is a very interesting one, and the attendant result is equally so. He was placed in wire-breeches, and has been kept there ever since. The wound has now nearly healed, the constitutional irritation has subsided, and he can move himself about without any pain or difficulty. I would remark that the amount of shock following this operation was not nearly so great as that which we every day experience after amputation of the thigh. I attribute this result to the fact, that in resection we leave the wound open, thus allowing of no chance for the collection of matter in a bag, such as is formed when the flaps are brought together.

* See Dublin Quarterly Journal, article on "Medical Epidemics," *in October number.*

SERO-CYST OF THE BREAST; REMOVAL.

Dr. Wood presented a second specimen, a sero-cyst of the breast, removed the day before yesterday from a maiden lady, 35 years of age, and a native of Newburgh. Her physician states that he discovered below the left nipple about six months ago a small tumor, which in a short time became indurated. I examined the case very carefully, and found the hard portion referred to; and inasmuch as there was no enlargement of the axillary glands, neither contraction of the nipple, I recommended a removal of the breast. On making a section of the mass after the operation, I came to a sero-cyst about the size of a black walnut, and which communicated with the ducts of the nipple. I present the specimen more particularly because of the rarity of the disease. I can remember but four cases of this sort which have been presented to the Society, and in one of these there was a large fungus growing from its walls.

This cyst has been examined by Dr. Hicks, the House physician of Bellevue Hospital, who makes the following report:—First, in the juice scraped from a freshly cut surface of the tumor, cells varying in size and shape, possessing, however, the common characteristics of rounded outlines, and definite cell contents; (a) cells rounded in form, containing one or more large nuclei, with distinct nucleoli, and granular matter; (b) cells fusiform and caudate in outline with nuclei and nucleoli and granular matter; (c) cells corresponding in form to those described in (a) but having no nucleus; aggregations of cells uniform in size, containing granular matter and possessing rounded outlines; collections of oil globules, uniform in size, and isolated and of variable size.

Secondly: On examining a *thin section*, the microscope exhibited a well marked fibrous stroma, in the areolæ of which were imbedded cells corresponding in character with those already described. A portion of one of the lobes of the gland itself exhibiting the lobules and gland vesicles proper, gave no evidence of any implication in the degeneration of the surrounding structures.

CANCEROUS LIVER.

Dr. O'Rorke exhibited a specimen of cancerous liver. D. S. K., æt. 48, a native of Ireland, had been complaining for some ten years with pains about his liver, and for the last two months had been jaundiced. He was under the care of an irregular practitioner for œdema of one of the lower extremities, and said that the bandages were so tightly applied that they caused gangrene of the toes. On the 11th of September, he entered St. Vincent's Hospital, and died exhausted with the disease on 30th of December following.

Dr. Finnell stated that he had dissected out the arteries in the œdematous limb, and found in the abdominal aorta just where the iliac artery is given off, there was a large atheromatous deposit; this diseased condition was also noticed to some extent in the primitive iliac artery, and in all the arteries below throughout the limb, with the exception of the external iliac, which seems to have escaped altogether. Dr. F. remarked that a ligature applied to this latter artery, would give the only hope for obliteration of the vessel, in case aneurism existed. The venous trunks of the limb were plugged up with fibrinous exudation.

ENCHONDROMA OF LUNG WITH SYMPTOMS OF EMPYÆMIA.

Dr. O'Rorke presented a second specimen of cancerous degeneration, which was a lung, removed from a young man 28 years of age, a native of Newfoundland. While aboard a whaler as cooper, he injured his knee, and from all accounts synovitis ensued, which in the course of time necessitated the removal of the limb. The operation was performed at the Hospital in Honolulu. He enjoyed fair health after this until last April, when he had a chill followed by fever, a hacking cough but no expectoration. He

entered St. Vincent's Hospital on the 19th of October. The physician in attendance looked upon it as a case of pleurisy with effusion. Dr. O'Rorke saw the patient on the 10th of November, and was requested to evacuate the chest, but the doctor did not favor the operation, and it was postponed. Shortly after, he commenced his term of service, when he found dulness over every part of the right chest as before, and absence of respiration; the side was also dilated, measuring considerably larger than the other. There was no œdema of the face or extremity; no enlargement of the veins of the neck, or thorax, with the exception of the two from the axilla to the neck. The heart was pushed to the left, the apex being 2¼ inches to the left of the nipple. The patient being very anxious that something should be done, Dr. O'Rorke supposing the case to be one of empyæmia, attempted to withdraw the fluid by punctnre of the chest, but no fluid appeared, and strange to say the patient appeared to be very much better from the attempt. On the 30th of December, about three weeks after this, he died suddenly.

On *post-mortem examination*, the whole substance of the right lung was found occupied with the deposit of enchondroma, and at two points it descended to make its way through the diaphragm. There were also deposits of the same material in the lower portion of the left lung. The patient complained of very little pain, but a good deal of dyspnœa, which latter was aggravated by sitting in an erect posture. The organ weighed 15¼ pounds.

Dr. Post remarked that he was present at a meeting of the Medical and Surgical Society, when the late Dr. Swett related a case where he had confounded a solid tumor in the chest, with a collection of fluid in the cavity of the pleura. Dr. Post at that time suggested the value of auscultatory percussion, and subsequently Dr. S. met with another case of the same character, where he arrived at a correct diagnosis, by a recourse to that method of examination.

Dr. Finnell lastly exhibited the portion of the femur from Dr. O'Rorke's patient, left after the amputation, the end of which was found to be beautifully rounded, and the medullary canal completely occluded.

The society then adjourned.

Correspondence.

BROMIDE OF IODINE AS A TOPICAL APPLICATION IN DIPHTHERIA.

[To the Editor of the American Medical Times.]

Sir:—In the treatment of diphtheria, I believe all sound practitioners are agreed that it is of prime importance to do everything calculated to nourish and sustain the patient, whilst administering such medicines as tend to correct the spansemia, so frequently if not universally recognised as one of its most striking features.

In common with many others, I have relied mainly on the tincture of sesquichloride of iron, for internal administration. Nor has my experience failed to convince me of its excellence. It has the superiority over chlorate of potash, in not disagreeing with the stomach, when properly diluted, and of not producing the exhausting diarrhœa which I have known, occasionally, to follow the use of the salt.

My object in addressing you this note is not to speak of the general medication in diphtheria, so much as to call attention to the fact that, in five cases, I have found great benefit from a topical application of which I have seen no published recommendation.

In the winter of 1859–60, a student of the University Medical College suffered from an exceedingly severe attack of the disease. There were all the well marked constitutional symptoms, with swelling of the lateral cervical glands, and abundant patches of exudation on the tonsils, uvula, roof of the mouth, and posterior pharyngeal wall. This gentleman was a son of Doctor Webb, of Hempstead, Long Island. As a probably fatal prognosis had been made in the case, the young man's father had come to New York, bringing with him a vial containing a mixture of *Bromide of Iodine*, in mucilage or syrup of gum arabic—two drops of the former to a fluid-ounce of the vehicle. This, he said he had heard, was a good antiseptic, and might prove useful in his son's case, as there was the usual fœtid character of the breath. Drachm doses of the medicine were taken internally, at intervals of several hours; and with a camel's hair pencil, it was applied frequently to the patches of exudation.

It certainly acted as a disinfectant; but it was followed by a remarkable change in the appearance of the membranes. Within twenty-four hours, they had, apparently, broken down—diappearing in spots, entirely, and leaving the mucous membrane red and smooth, where the white exudation had formerly existed. Within the next eighteen hours, the fauces and palate were entirely freed from all pellicular matter.*

The next case in which I used it, occurred in a lad of thirteen, who had, two years previously, suffered severely from scarlet fever. The diphtherial exudation was extensive, the constitutional symptoms very grave, and the angina of the most marked type.

To test the remedy in question, I applied it to the left tonsil, which was hypertrophied very considerably, and completely covered with an exudation, having very much the appearance of white chamois skin, soaked in water. In twelve hours, the edges commenced to loosen, and in twelve more, the whole mass was coughed out, leaving a very red and bleeding surface under its former place. This patch measured a line and a half in thickness, and was an inch in length by three quarters of an inch in breadth. Exudation had commenced to form on the uvula, when the application was made to the tonsil. It soon ceased to spread, and was but ephemeral.

In the last case under my care, a girl of thirteen, whom I had attended seven years ago with well marked scarlatina, the exudation involved the tonsils and spread to the uvula after the fourth day. The Bromide of Iodine at once checked the fœtor of breath, and in twenty-four hours caused a complete disappearance of membrane both from the tonsils and uvula.

I spare the details of two other cases, as they were not of such character as to make a different description necessary.

I submit these facts to the profession, well knowing with what diffidence we should look upon new "discoveries" in the remedial world, and hoping that the true value of Doctor Webb's suggestion may be ascertained in the only proper manner, i. e. by the result of many observations. I should have waited for more than five cases, before presuming to address you; but, as my practice does not furnish me with the great number of patients that some of my medical brethren have encountered, I indulge the hope that their more extended field of observation may enable them to do what I have suggested above.

The topical application that I have employed has consisted of four or five drops of the Bromide, to the fluid ounce of Gum Syrup, well applied to the diphtherial patches, every two hours. There is nothing unpleasant to the taste or smell in the tincture thus prepared, notwithstanding the very disagreeable nature, in both these respects, of the pure liquid. It is well to continue its use, less frequently, until the mucous membrane shall have resumed its normal appearance.

John T. Metcalfe, M.D.

Jan. 21, 1861.

* The patient subsequently recovered.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

[To the Editor of the AMERICAN MEDICAL TIMES.]

SIR:—The fifty-fourth Annual Meeting of the Society will be held in Albany, pursuant to statute, on the 5th of February next.

Delegates will please be punctual to present their credentials, and to enter their names on the Register. Members of the Society and all others are requested to give early notice of any paper which they may have to present.

Officers of County Medical Societies, giving credentials to Delegates, will prevent delay and disappointment, by using the words "duly elected Delegate," etc. A Delegate cannot be *appointed*, the law makes no such provision; neither can an *alternate* or *substitute* be sent. The office is an *elective* one, and must be filled by an election. It would be just as proper to send an "alternate" or "substitute" for Governor or President, as for Delegate. When a vacancy is filled by the resignation or death of a Delegate, the certificate should so specify, and at what time the term of office expires. Permanent members, and Delegates who have occupied seats in the Society, do not need yearly credentials.

The Institution, organized as it is by law, must act in strict conformity to that law. And attention is accordingly drawn to important, though it may appear minor points, which have been frequently overlooked by officers in filling credentials to be presented to the State Society.

S. D. WILLARD, M.D., Secretary.

ALBANY, January 26, 1861.

THE APPLICATION OF THE NITRATE OF SILVER BY INHALATION.

[To the Editor of the AMERICAN MEDICAL TIMES.]

SIR:—For a number of years I have been applying the nitrate of silver, well triturated with a little white sugar, directly to the larynx and trachea, by the means of a small glass tube, three or four inches long. The powder is placed in the tube, the fore-finger is then placed on one end, the other is passed into the mouth as far as possible without coming in contact with the epiglottis; the mouth is then closed tightly over the tube, the finger is then removed, and at the same moment a strong inhalation or inspiration will draw the powder into the larynx and trachea, where it is absorbed by the mucous membrane, without any unpleasant sensations. By this means the unpleasantness of having the probang thrust into the larynx is avoided, and the benefits received are the same, but more satisfactory. After the first application, the patient can repeat the same without assistance.

D. F. FETTER, M.D.

151 WEST-42D STREET, NEW YORK.

THE CONICAL TREPHINE.

[To the Editor of the AMERICAN MEDICAL TIMES.]

SIR:—We noticed an article in the Number of your esteemed Journal for January 5, giving a description of a new trephine, invented by Dr. Galt, of Virginia. There was also reported a successful operation with the instrument by Dr. L. A. SAYRE, with the remark, "That this was the first time this instrument had ever been used upon the living subject."

Now, sir, in referring to some of the authorities on surgical instruments, we find an engraving of a conical trephine, with lateral cutting teeth, in Heister's *General System of Surgery*, London edition, 1743, Plate 15, fig. 3: also in Blasius, *Chirurgical Plates*, 2d edition, Berlin, 1844, Plate 20. In the *Armamentarium Chirurgicum* of Dr. Joh. Scultetus, mention is also made of a conical trephine, which Blasius describes as from Fabricius ab Aquapendente. We have also had in our store, for six or eight years, a complete set of trephining instruments, bought at second-hand, by Dr. P., of this city, twenty years ago, and left with us to be disposed of. This set of instruments has the appearance of having been manufactured fifty years ago, and contains three trephines of different sizes, which are not only conical and have lateral cutting teeth, but these teeth are inclined exactly as in the trephine introduced by Dr. Galt. Another trephine, manufactured by us, some six years ago, on the same principle, but not *quite* so conical as the one under discussion, we presented a few days ago to Dr. Sayre, who experimented with it on an old skull, and it was found that the instrument answered perfectly well the desired object, viz. it did not penetrate at all after the perforation of the cranial walls; the efforts to force the instrument further, resulted in breaking the strong cross handle.

In communicating these facts, we do not wish to detract in any sense from the merits of Dr. Galt, who never saw the instruments in our possession. On the contrary, we think that both the profession and the instrument-makers are under great obligations to Dr. Galt, for re-inventing a long-lost and very useful instrument.

The accompanying wood-cut, about half-size, shows the trephine in our possession, fastened in a brace as used formerly, and even now generally, in France and Germany, etc., and as represented in Heister: the other trephine (natural size) is the same as now made by us.

We should be happy to exhibit the original antique instrument to the Profession, and will have those useful trephines always on hand for the future.

Respectfully yours,

OTTO & REYNDERS.

Manufacturers of Surgical Instruments.

NEW YORK, 58 Chatham Street.

FOREIGN CORRESPONDENCE.

EDINBURGH.

Dec. 15th, 1860.

To-day I saw two well-marked cases of chronic pleurisy which had resulted in effusion into the chest. One was a man in the prime of life. On inspection, the left side was evidently the smaller, and rose and fell far more than the right. On the left, vocal fremitus normal; on the right, present only just below the clavicle. Auscultation on the left revealed exaggerated healthy murmur, and heart pushed to the left; on the right, no sound at all, except just below the sterno-clavicular articulation, before and behind. Percussion on the left slightly more resonant than normal; on the right, flat and resistant, as Dr. Begbie remarked, as a stone wall. In fact, by percussing alternately upon the chest and the stone-wall of the house, we produced exactly the same sound. The other case was that of a young girl. In her case, the effusion had taken place upon the left side, and had pushed the heart over to the right side. Paracentesis thoracis will be performed in each of these cases, in a few days.

Dr. Begbie remarked that he did not dread the entrance of air into the cavity of the pleura as much as some did, and seemed to regard it as a theoretical fear indulged in by those who had not frequently performed the operation. He uses no precautions against the entrance of air, careless whether it does or does not obtain access. There is at present in Dr. B.'s wards a lad who was admitted some time ago with well marked Typhoid fever. The disease ran its usual course. After a somewhat prolonged interval convalescence was established. I saw the case repeatedly, and there is no doubt it was Typhoid fever. He lay in a ward crowded with Typhus fever patients. In a few days after he had recovered sufficiently to move about, he was taken with Typhus, presented its characteristic measly eruption, and is now delirious.

It may be well for me to just jot down the characteristic symptoms of the four kinds of fever prevalent here, according to Prof. Bennett. He classes them as, 1st. Febricula; 2d. Relapsing; 3d. Typhoid; 4th. Typhus. The Febriculæ having for their cause excess, exposure, fatigue, etc., etc., and terminating in from two to seven days. The Relapsing fever arising from a specific cause, and terminating in apparent convalescence in from five to eight days; in a week a relapse.

Typhoid, arising from a specific cause, attended by the usual signs of fever, abdominal tenderness, and diarrhœa, and terminating on the thirtieth day. Typhus, arising from a specific cause, the usual symptoms of fever, and terminating by the twenty-first day.

Dr. Bennett attaches but very little importance to the so-called characteristic eruptions, and says that, notwithstanding all that has been said as to distinguishing between Typhoid and Typhus by the eruption or abdominal symptoms, before the twenty-first day, he believes it to be impossible. In his clinical lecture of December 14, as well as in his work on the theory and practice of medicine, he said that at the onset we are unable to say what any given case will turn out to be. If the fever ceases on the seventh day, it may be febricula or relapsing fever. The latter can be known only by the return of the disease. Should the fever continue beyond the seventh, then we have to do with typhus or typhoid. The diagnosis between these last two is for the most part retrospective, and can only be determined in the advanced stages. The treatment he advocates is very simple, consisting merely of salines at the outset, careful and systematic feeding throughout the whole course of the disease, and wine and stimulants the moment the pulse begins to flag. However rapid the pulse, high the fever, and great the disgust at food, still nourishment must be got down. Beef tea is the best.

Dec. 18, 1860.—A case of fever in the wards, now in the twentieth day, exhibits great prostration, which Prof. B. has no hesitation in attributing to want of nourishment. Wine and careful feeding with strong beef tea were ordered. Dr. Stokes, of Dublin, who desired that there might be put over his grave the inscription, "He fed fevers," was mentioned with high commendation. It was remarked that no one nowadays pretended that fevers could be stopped. That was given up long ago. All that we can do is to support the patient and enable the system to throw off the morbid poison. Our treatment of disease must be founded upon its physiology and pathology. All poisons tend to elimination sooner or later, and we must support the body while this process is going on. The headache of fever is greatly alleviated by cold applications to the head. They can be but seldom used in a hospital, beeause the cloth moistened in cold water and applied to the warm head very soon becomes nothing more nor less than a hot fomentation. The best method of applying cold is the following. Pour cold water upon the head, inclined over the side of the bed, above a basin. Ordinary precautions may prevent wetting the dress or bed-clothes. Another good way is to allow the long hair of females to hang into a basin of cold water. The capillary attraction of the hair will produce the desired effect. Why is not the India rubber cap made for the purpose and filled with cold water or ice better than any other contrivance? In regard to the diarrhœa of typhoid fever, Prof. Bennett remarked that he rather doubted the propriety of stopping it, but that there appeared to be no objection to giving a little chalk mixture to check it. Be very careful about purgatives in fevers; nothing can be more dangerous. You may by their use engender enteric disease. There is no call for their use. Nothing brings down the strength so much as purgation. This holds in all diseases. I am inclined to think that occasionally we can check a fever at the onset by an emetic. As a rule, whenever called in very early in fever, I always order an emetic. I cannot speak upon this point with any certainty; it does not admit of demonstration.

Medical News.

Marriage.

Beech—Perry—In Clarkson, N. Y., on Tuesday, January 15th, at the residence of the bride's father, by the Rev. Joseph McNulty, J. H. Beech, M.D., of Coldwater, Mich., to Miss Mary J., daughter of Mr. John Perry.

The New York Academy of Medicine has commenced a new presidential term, by placing, in the most unqualified manner, its seal of disapprobation upon the newspaper reports of its proceedings. At a late meeting, the following resolutions were passed with but one dissenting voice:

Whereas, Section 8 of Article 1 of the Code of Ethics American Medical Association, adopted by this Academy, declares it to be "derogatory to the dignity of the profession" to publish cases and operations in the daily prints, *or to suffer such publications to be made*, and that such proceedings "are the ordinary practice of empirics and highly reprehensible in a regular physician," therefore,

Resolved, That the practice heretofore in vogue in this Academy of permitting reporters of secular papers to attend its meetings, take notes of its proceedings, and publish them, is in violation of said code, and is hereby prohibited in future.

Resolved, That it is equally in violation of said code for Fellows of the Academy to publish, or cause to be published, any transactions thereof, in any other than strictly medical journals.

Resolved, That nothing in the aforesaid resolutions shall be so construed as to preclude the Academy, at its discretion, from publishing in the newspapers any of its discussions or of its acts relating to hygiene or to public health.

Anniversary of the New York Woman's Hospital.—The Sixth Annual Anniversary of the New York Woman's Hospital was held at the hospital, No. 83 Madison Avenue, on Saturday last, at twelve o'clock, James W. Beekman presiding. The Treasurer's Report shows the receipts of the hospital for the year just past to have been $8,511 36, its disbursements $8,958 08, and the unpaid bills $726 88. It appears that the limited pecuniary embarrassments of

the institution, compared with those under which it has labored heretofore, is mainly due to the increased number of paying patients, to the increased price of their board, to the Treasurer's systematic collection of the board dues in advance, and to a legacy of $500 left by the Hon. BENJAMIN F. BUTLER to the State Woman's Hospital, and loaned by the Board of Governors to the New York Woman's Hospital. During the past year 130 patients have been admitted, of whom 99 have been discharged, 41 permanently relieved, 52 perfectly cured, 2 deceased, and 4 incurable. The rest are still in the hospital. There are at present in the hospital 32 patients—17 paying and 15 free.

ACADEMY OF MEDICINE.—Dr. Peter Vanburen was recently elected Chairman of the Section on Materia Medica. The Section meets on the second Friday evening of each month.

HEALTH OF LONDON.—There were one thousand two hundred and sixty-nine deaths in London during the week ending December 22d. During the same week were registered the births of 877 boys and 903 girls.—*Lancet.*

THE *Virginia Medical Journal*, one of the most valuable of our exchanges, disappeared from our exchange list nearly two years ago, since which we have had no definite knowledge of the changes which it had undergone until the receipt of the *Maryland and Virginia Medical Journal*, No. 1, Vol. XIV., January, 1861. We now learn that this journal is published simultaneously at Richmond and Baltimore, and is edited by Drs. J. B. MCCAW, W. C. VAN BIBBER, and WILLIAM A. HAMMOND, with thirteen co-editors, among whom we notice the following familiar names—N. R. SMITH, CHEW, JOYNES, OTIS, GIBSON, DONALDSON, PETICOLAS, BUCKLER.

At the banquet given to M. RICORD by his *confrères* on Thursday, December 20th, there were present about two hundred members of the medical profession, including representatives from Great Britain, Germany, Sweden, Russia, Greece, Italy, the United States, and South American Republics. Strange to say, none of the Professors of the Faculty of Medicine were present, with the exception of "M. TROUSSEAU, who, following the impulses of his manly and independent character, seemed by his presence to protest against the unjust neglect of his colleagues."

CÆSAREAN OPERATION.—In the *Nashville Journal of Medicine and Surgery*, Drs. Stewart and Kyle, of Florence, Alabama, report a successful case of the Cæsarean operation.

THE BEATING OF THE FŒTAL HEART.

I PONDER'D by the bed-side,
I walk'd about the room:
The stillness of my patient
Fill'd my mind with deepest gloom;
The Os was firm and rigid,
Not a fibre of it stirr'd;
And the beating of my own heart
Was all the sound I heard.

I sat me by her right side,
I watch'd her pale, pale cheek;
But as it grew still paler,
I did not dare to speak
I watch'd her for a movement,
Then ask'd her for one word;
But the beating of my own heart
Was all the sound I heard.

It came not—no—it came not,
The night was passing on,
I knew not but my patient
And her Fœtus, might be gone.
To the precept of my teacher
A happy thought referr'd,—
Where he told me, most profoundly,
What sounds were often heard.

The Stethoscope,—then gently
I press'd it to her side,
As though she'd been an angel,
Or were to be my bride,
I press'd it nearer—nearer—nearer;
A sound!—'tis clearer—clearer—clearer;
I did not speak—no—I did not speak a word,
But the beating of the Fœtal Heart was the joyous sound I heard.

Med. Times and Gaz.

A REAL IMPROVEMENT.—The sterling *Irish Journal*, the *Dublin Medical Press*, commences its twenty-first year of publication with cut edges, a novelty in British journalism. It says, "one of the inconveniences of our British periodicals is the necessity of cutting them after their receipt, and before any of the contents can be perused, and the medical man who is handed his 'Press' when stepping into his carriage, or on any occasion in which it might be inconvenient to obtain a book-knife, is tempted either to pass over some of the articles without reading them, or to mutilate the journal in attempting to open it, in such a manner as frequently to render the number unfit for binding afterwards. The advantage of cutting the journal before sending it out is suggested to us by the constant examination of the American Medical publications, among which this principle is universally adopted, and which, in the hurry of business, we are sometimes tempted to take up in preference to the uncut paper which lies beside it."

COMMUNICATIONS have been received from:—
Alabama—Dr. E. H. SHOLL. *Canada*—Drs. L. D. RIDDELL, A. M. ROSEBRUGH. *Illinois*—Drs. J. BRELSFORD, H. HOLCOMB. *Indiana*—Drs. J. LAMB, H. DUNCAN. S. REID, R. W. PIERCE. *Iowa*—Drs. P. M. MCLAREN, H. B. TUTTLE, J. COLE. *Maine*—Dr. G. W. MARTIN. *Massachusetts*—Drs. W. M. TROW, A. J. GRAY, E. W. CARPENTER, M. SPAULDING, J. BLODGETT, WELLINGTON. *Minnesota*—Dr. W B. SIMONTON. *Mississippi*—Dr. J. P DROMGOOLE. *New Hampshire*—Drs. E. H. SANBORN, S. BROWN, S. G. DEARBORN. *New York*—Drs. L. P. GREENWOOD, W. P. BELL, S. S. CARTWRIGHT, A. M. VEDDER, E. M. SOMERS, D. HOPPER, E. WEBB, H. A. CARRINGTON, C. F. WARNER, F. B. PARMELEE, W. W. MURPHY, M. W. TOWNSEND, H. W. LEONARD, J. C. PATTERSON. *Pennsylvania*—Drs. S. SCHREIVER, J. BREITENBACH. *Ohio*—Drs. J. MACREADY, R. HILLS. *Vermont*—Drs. E. HAZEN, L. D. ROSS, A. T. WOODWARD. *Virginia*—Drs. W. M. TURNER, E. L. BAKER. *South Carolina*—Dr. J. J. CHISHOLM. *Connecticut*—Dr. W. W. TERRY. *Wisconsin*—Dr. A. YOUNG.

METEOROLOGY AND NECROLOGY OF THE WEEK IN THE CITY AND COUNTY OF NEW YORK,

From the 20th day of January, 1861, to the 26th day of January, 1861.

Deaths.—Men, 76; women, 88; boys, 127; girls, 112—total, 403. Adults, 154; children, 239; males, 203; females, 200; colored, 1. Infants under two years of age, 153. Among the causes of death we notice:—Infantile convulsions, 31; croup, 8; diphtheria, 15; scarlet fever, 31; typhus and typhoid fevers, 4; consumption, 52; small-pox, 10; dropsy of head, 21; infantile marasmus, 15; inflammation of brain, 9; of lungs, 40; erysipelas, 5; bronchitis, 7; congestion of brain, 3; of lungs, 9; whooping cough, 3; measles, 3; rheumatism, 2.

Jan. 1861.	Barometer.		Temperature.			Difference of dry and wet bulb. Thrm.		Wind.	Mean amount of cloud.	Rain.
	Mean height.	Daily range.	Mean	Min.	Max.	Mean	Max.			
	In.	In	°	°	°	°	°		0 to 10	In.
20th	29.81	.21	35	28	40	5	8	S.W.	6	
21th	30.10	.30	27	22	34	4.5	6.5	N.W.	.05	
22th	30.40	.31	22	16	28	3.5	5.5	"	.03	
23th	30.54	.24	21	14	28	3.3	5	N.	5	
24th	30.20	.30	33	25	40	1	1	N.E.	10	
25th	29.90	.34	31	26	37	2	3	"	10	.13
26th	30.15	.30	27	24	31	1.5	2	"	10	

REMARKS.—20th. Wind fresh P.M.; cloudy P.M. 21st. Fresh wind P.M. 22nd. Fresh breeze all day. 23rd. Wind fresh A.M., cloudy P.M. 24th. Snow storm commenced at 4 A.M., rain and thaw at night. 26th. Snow P.M.

MEDICAL DIARY OF THE WEEK.

Monday, Feb. 4.
- NEW YORK HOSPITAL, Dr. Halsted, half-past 1 P.M.
- EYE INFIRMARY, Diseases of Eye, 12 M.

Tuesday, Feb. 5.
- NEW YORK HOSPITAL, Dr. Buck, half-past 1 P.M.
- EYE INFIRMARY, Diseases of Ear, 12 M.
- OPHTHALMIC HOSPITAL, Drs. Stephenson & Garrish, 1 P.M.
- BELLEVUE HOSPITAL, Dr. Loomis, half-past 1 P.M.

Wednesday, Feb. 6.
- EYE INFIRMARY, Operations, 12 M.
- NEW YORK HOSPITAL, Dr. Cock, half-past 1 P.M.
- BELLEVUE HOSPITAL, Dr. Mott, half-past 1 P.M.
- ACADEMY OF MEDICINE, 7½ P.M.

Thursday, Feb. 7.
- OPHTHALMIC HOSPITAL, Drs. Stephenson & Garrish, 1 P.M.
- NEW YORK HOSPITAL, Dr. Halsted, half-past 1 P.M.
- BELLEVUE HOSPITAL, Dr. Elliot, half-past 1 P.M.

Friday, Feb. 8.
- NEW YORK HOSPITAL, Dr. Buck, half-past 1 P.M.
- BELLEVUE HOSPITAL, Dr. Church half-past 1 P.M.
- EYE INFIRMARY, Diseases of Eye, 12 M.

Saturday, Feb. 9.
- BELLEVUE HOSP., Dr. Wood, half-past 1 P.M.
- OPHTHALMIC HOSPITAL, Drs. Stephenson & Garrish, 1 P.M.
- NEW YORK HOSPITAL, Dr. Cock, half-past 1 P.M.
- EMIGRANTS' HOSP., WARD'S ISLAND, Dr. Carnochan, 3 P.M.
- EYE INFIRMARY, Diseases of Ear, 12 M.

SPECIAL NOTICES.

BELLEVUE HOSPITAL.—*On Saturday (this day), February 2d,* Dr. JAMES R. WOOD *will lecture on Necrosis, and the Reproduction of Bone.*

Original Lectures.

LECTURES ON THE PHYSIOLOGY OF THE CRANIAL NERVES.

DELIVERED IN THE COLLEGE OF PHYSICIANS AND SURGEONS.

BY

JOHN C. DALTON, JR., M.D.,

PROFESSOR OF PHYSIOLOGY AND MICROSCOPIC ANATOMY.

Lecture II.

To-day, gentlemen, we shall take up the study of the fifth pair, or the great Trifacial. This is a nerve of peculiar interest, not only on account of its extensive distribution and the strongly marked character of its function, but also on account of the strong resemblance which exists between it and the spinal nerves. For the fifth pair originates, like the spinal nerves, from a double root: sensitive and motor. We find that its sensitive root, like those of the spinal nerves, is provided with a ganglion; and we find also that its two roots, while they are entirely distinct at their origins, become mingled to a certain extent after they have left the cavity of the cranium, and are distributed both to the integument and to certain of the muscles of the face.

In the first place, let us examine the principal points in the anatomy of this nerve; after which we will pass to a consideration of the different functions which belong to it. The fifth pair originates, as I have said, by two distinct roots, which emerge from the substance of the brain on the lateral surface of the pons Varolii. This is of course the apparent, but not the real origin of the nerve. For if we trace the fibres downward, we find that they come from a much deeper situation, and that the fibres of the larger root can be traced to the continuation of the sensitive filaments of the spinal cord, and the smaller root to that of its motor fibres. The two roots then pass forward, side by side, until they reach the superior surface of the inner extremity of the petrous portion of the temporal bone, which they cross at the situation which I indicate here. The petrous portion of the temporal bone, as you will remember, is in the form of a triangular pyramid, one of its sides looking downward, another backward, and the third forward and upward. It is upon the internal extremity of this anterior and upper surface of the pyramid, that the nerve rests. It is just at this spot that we find upon it a very remarkable formation which indicates more clearly than any other its analogy to the spinal nerves; that is the great ganglion which is situated in the course of its sensitive root. If you look at the fifth pair in this preparation, in which the dura mater has been dissected away from above, you will see a wide collection of grey matter stretching from one side of the nerve to the other. It has a crescentic form, and is therefore called the crescentic ganglion; or more frequently, from Casserio, an Italian anatomist, who first described it, the *Casserian* ganglion. The situation of the ganglion you will see also in this fresh preparation. Looking from above downward, you see the large root entering the grey matter of the ganglion, where its fibres become intermingled with its substance; but if we turn the ganglion over and examine its under surface, we shall then see that the smaller or motor root passes underneath it, but has no other connexion with the ganglion than that of mere contiguity.

The next point in the anatomy of the fifth pair of nerves is that after passing the situation of the Casserian ganglion it separates into three great divisions; one of these goes to the orbit of the eye and the integument of the superior part of the face; the second passes through the superior maxillary bone, and supplies the middle part of the face; while the third is distributed to certain muscles in the lower part of the face and to the integument and mucous membranes of the same region. These three distinct divisions are known as the *ophthalmic*, the *superior maxillary*, and the *inferior maxillary*. The ophthalmic division of the fifth pair runs from behind forward, enters the orbit of the eye by the sphenoidal fissure, in company with the motor nerves which I described yesterday. Having arrived at the inner and anterior part of the orbit, it sends off several branches; one of which, the nasal branch, is distributed to the mucous membrane of the middle and lower part of the nasal passages. The other branches are distributed in part within the cavities of the orbit, to the lachrymal gland, the lachrymal ducts, and to the mucous surface of the conjunctiva. The ophthalmic division then emerges from the cavity of the orbit, by the supra-orbital foramen (which, as in this skull, is sometimes nothing more than a mere notch in the bone), and spreads out into a brush of minute filaments, to be distributed to the integument of the forehead and sides of the head as far back as the vertex. The superior maxillary division of the nerve runs also from behind forward, but very soon passes out of the cranium by the foramen rotundum (into which the end of the probe is now inserted). From this point, it passes into the spheno-maxillary fossa, and thence enters a canal in the floor of the orbit. During its passage through this canal it sends abundant filaments to different parts of the upper jaw, and particularly to the roots of the teeth. After supplying the teeth in this manner, the nerve emerges from the infra-orbital foramen, and, passing out upon the middle of the face, breaks up into a brush of filaments, which are distributed to the skin;—supplying in this way the middle and most sensitive region of the face. Finally, we have the inferior division of the fifth pair, or the inferior maxillary. This division passes almost directly from above downward, through the foramen ovale, in the base of the skull, and then continuing its course in a downward direction, enters the inferior dental canal, in the body of the inferior maxillary bone. While passing through this canal it gives nerves to the teeth of the lower jaw, and finally, emerging from the anterior extremity of the bone, through the mental foramen, it supplies the mucous membrane of the lower lip and the skin of the lower part of the face. These three nerves, therefore, the three divisions of the fifth pair, supply the integument of the superior, middle, and inferior portions of the face. There are, however, two peculiarities in the anatomy of the inferior division, which I have yet to notice; one is, that, as it is passing from above downward, in order to engage itself in the inferior dental canal, it gives off a very important nerve, which goes by the name of the *lingual branch of the fifth pair*. This nerve is important, in consequence of the special character of its sensibility; for it not only possesses the property of general sensibility, like the other branches of the fifth pair, but also the power of appreciating the impression of sapid substances. I shall, however, return to this point in a few moments. The other peculiarity is that, beside the lingual branch just mentioned, there are four or five others, which leave the inferior division of the fifth pair immediately after its emergence from the foramen ovale, and which are distributed to the muscles of mastication, or those which move the lower jaw. The nerve, from this circumstance, sometimes goes by the name of the *masticator nerve*.

In this preparation you have all these branches exposed, with the exception of the masticatory filaments, which have been necessarily removed. You see the Casserian ganglion with its three principal branches, and also the infra-orbital and mental nerves where they emerge from their respective foramina, to be distributed to the sensitive surfaces in their vicinity.

Now, with regard to the functions of the fifth pair, beyond question the most important nerve distributed to the face.

In the first place, this is an excessively sensitive nerve, more so than any other in the body. If we irritate the branches of the first and second divisions of the fifth pair, we find that a painful sensation is produced, but no convul-

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The Course preliminary to the Session of 1861 will begin on the 18th of February, and the *Regular Lectures* on the 18th of March, to continue 1 the middle of July.

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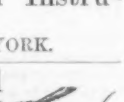

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